

MINISTRY OF HOUSING
AND LOCAL GOVERNMENT

Report
of the Inquiry into the Local
Objections to the proposed
development of land at Stansted
as the Third Airport for London

6th DECEMBER 1965 — 11th FEBRUARY 1966

*Presented to the Minister of Housing
and Local Government by
Mr. G. D. Blake, M.A., F.R.I.C.S., F.A.I.*



LONDON
HER MAJESTY'S STATIONERY OFFICE
1967

CONTENTS

INQUIRY TERMS OF REFERENCE AND INTRODUCTION

CONCLUSIONS

	<i>Page</i>
Local Objections	3
Alternative Sites	4
Access	6
Summary of Requirements	7

SUMMARY OF EVIDENCE AND ARGUMENTS

Ministry of Aviation	9
Essex County Council	11
N.W. Essex and East Herts. Preservation Association	13
East Midlands Airport Joint Committee	16
Saffron Walden Rural District and Borough Councils	16
Dunmow Rural District Council	16
Takeley Parish Council	17
Luton County Borough Council	17
Kent County Council	18
Sheppey Rural District Council	18
Yorkshire Airport Development Association... ..	18
Messrs. Newson and Fulton	18
Mr. J. Steel	19
Hertfordshire County Council and the N.E. Metropolitan Regional Hospital Board	19
Bishop's Stortford Urban District Council	20
Sawbridgeworth Urban District Council	20
Ministry of Defence	20
Southend County Borough Council	21
County Landowners' Association and National Farmers' Union	21
Hockerill College and Royal Wanstead Schools	22
Mrs. R. Ash	23
Mr. Ian Robertson	23
The Thaxted Society	23
The Noise Abatement Society	24
The British Gliding Association	24
The Stansted Progress Society	24
Essex Branch, Council for the Preservation of Rural England	24
Dr. J. Needham	24
Mr. Conrad	24
Mr. J. T. Wallace	24
Mr. S. J. Bush	24
Mr. P. D. Harrison	24
Mr. and Mrs. Miles	25
Mr. A. H. Bowden	25
Mr. D. H. Waterfield	25
Mr. J. W. Clitherow	25
Lt.-Commander Boaks	25
Mr. Ellis, London Gliding Club	25

The Springfield Residents' Association	...	...	...	...	...	...	...	page
The Wasdale Construction Co. Ltd.	...	...	...	...	...	...	...	26

CLOSING SPEECHES

N.W. Essex and East Herts. Preservation Association	...	...	...	...	...	...	...	26
Essex County Council	...	...	...	...	...	...	...	27
Ministry of Aviation	...	...	...	...	...	...	...	29

APPENDICES

Appendix 1.—Noise	...	...	...	...	...	...	...	33
" 2.—Surface Access	...	...	...	...	...	...	...	36
" 3.—Planning	...	...	...	...	...	...	...	38
" 4.—Agriculture	...	...	...	...	...	...	...	40
" 5.—List of Appearances	...	...	...	...	...	...	...	42
" 6.—List of Objectors	...	...	...	...	...	...	...	46
" 7.—Mr. J. W. S. Brancker, Assessor	...	...	...	...	...	...	...	51

SECTION 1	AIR TRAFFIC CONTROL AND THE OMNI-DIRECTIONAL USE OF AIRPORTS							
	PART 1 GENERAL	...	...	...	...	...	...	52
	PART 2 AIR TRAFFIC CONTROL, STANSTED	...	...	...	...	...	...	54
	PART 3 AIR TRAFFIC CONTROL, SHEPPEY	...	...	...	...	...	...	55
	PART 4 AIR TRAFFIC CONTROL, CLIFFE	...	...	...	...	...	...	55
	PART 5 AIR TRAFFIC CONTROL, PADWORTH	...	...	...	...	...	...	57
	PART 6 OMNI-DIRECTIONAL MERITS	...	...	...	...	...	...	59
SECTION 2	INTER-AIRPORT COMMUNICATIONS	...	...	...	...	...	...	59
SECTION 3	SITE CHARACTERISTICS	...	...	...	...	...	...	60
SECTION 4	TRAFFIC GROWTH AND STATISTICS	...	...	...	...	...	...	62
SECTION 5	METEOROLOGY	...	...	...	...	...	...	63
SECTION 6	ALTERNATIVES OTHER THAN CLIFFE, SHEPPEY AND PADWORTH	...	...	...	...	...	...	64
SECTION 7	MISCELLANEOUS POINTS	...	...	...	...	...	...	64

To the Rt. Hon. R. H. S. Crossman
Minister of Housing and Local Government
Whitehall, S.W.1.

Sir,

1. On the 14th October 1965 you appointed me to hold a public local inquiry into local objections to the proposed development of land at Stansted in the County of Essex as the third airport for London. The purpose of the inquiry was defined as follows: 'to hear and report on local objections relating to the suitability of the choice of Stansted for an airport and the effect of the proposed development on local interests. It will be open to objectors to suggest modifications to the outline scheme of development or to propose alternative sites, but not to question the need to provide a third major airport to serve London'.

2. The inquiry was held at the County Hall, Chelmsford, commencing on 6th December 1965. It ended on 11th February 1966. Throughout the proceedings I had the invaluable help of Mr. J. W. S. Brancker as technical assessor. His review of the evidence relating to aviation and air traffic is attached to this report as Appendix 7.

3. Over 260 written objections were received, mostly from people living or working in the neighbourhood. The most common grounds of objection were the change in the character of a predominantly rural area, the noise associated with a major airport and the loss of a considerable area of very good agricultural land.

4. The North West Essex and East Herts. Preservation Association was formed with some 13,300 members for the purpose of objecting to the airport. The Essex County Council and the Hertford County Council objected to the proposal, as did local authorities in the vicinity.

5. The Stansted Area Progress Association produced 927 letters from local residents and workers who do not object to the proposal subject to reservations regarding compensation and the preservation of rural amenities.

6. No modifications to the proposal were suggested but alternative sites were put forward.

The proposed development

7. The inter-departmental committee on the third London Airport issued its report in June 1963 (C.A.P. 199). It stressed the need for a third London Airport and, after reviewing 18 different sites, recommended Stansted. Subject to revision of the suggested layout of the airport, the report was put forward as representing the ideas of the Ministry in general terms. I have, however, considered the problem on the evidence put forward at the inquiry.

8. The existing Stansted Airport was built during the last war and used by the United States Air Force from 1942 to 1946. Since then it has been an R.A.F. maintenance unit, it has been licensed as a civil aerodrome and overall the U.S. Air Force retained an interest in it until 1958. Its main runway is 10,000 ft. long and 200 ft. wide and there is a subsidiary runway. It is now used mainly for training purposes and when necessary on account of weather conditions as an alternative to Heathrow and Gatwick. It occupies about 800 acres.

9. A report has been prepared by Messrs. Norman & Dawharn on the engineering and other problems involved in converting the airport into a major port serving London and setting out appropriate schemes. The report was available to the objectors. The schemes provided two parallel runways, one capable of extension to 16,500 ft., the other 12,000 ft. and provision for a possible third runway of 8,500 ft. The runways would be 6,000 ft. apart.

10. The airport is designed to achieve a standard busy rate (S.B.R.) of 64. The S.B.R. is the number of aircraft movements (in and out) reached or exceeded thirty times in the summer. 64 S.B.R. implies a peak figure of about 80 movements per hour.

11. The inquiry occupied 31 days and a full transcript of the proceedings was taken and is available. I propose therefore to review the evidence and arguments only briefly. Similar points recurred throughout the hearing and for simplicity I have summarised them under the main material headings as follows:—

- | | |
|-------------------------------|-----------------------------|
| (1) Air Traffic control | Appendix 7 by Mr. Brancker. |
| (2) Planning | Appendix 3. |
| (3) Noise | Appendix 1. |
| (4) Ground access to airports | Appendix 2. |
| (5) Agriculture | Appendix 4. |

My conclusions immediately follow this introduction.

Conclusions

LOCAL OBJECTIONS

12. These are formidable and justified.

Noise

13. Apprehension that the level of noise would destroy residents' enjoyment of their homes, in some cases to an intolerable extent, was uppermost in most objectors' minds. It was conceded by the Ministry witness that, for instance, in Bishop's Stortford and other neighbourhoods around Stansted, of some 43 selected schools about half could not continue if the proposed airport were working to capacity—others, according to their location, aspect and type of construction, would have to be examined individually to see if remedial measures were possible. The Herts. and Essex Hospital would have to close. This gives some indication of the nuisance to which houses, shops and other buildings will be subject. Sound-proofing measures include closed double windows and air conditioning—the peak noise periods are in the summer when such conditions would not be popular. Nothing can be done to mitigate noise out of doors. At least 7,000 houses would be subject to grave nuisance by noise. I have ignored the noise at present experienced. To take this into account would to a large extent be begging the question.

Traffic

14. Objectors are concerned about the vast increase in road traffic which would be generated by the airport. The lowest estimate of peak traffic exceeded 5,000 vehicles per hour entering and leaving the airport.

Regional Planning

15. Inevitably the airport would attract a considerable increase in population which would have to be housed and serviced. If full value is to be obtained from the cost of creating a new major traffic focus, suitable industries will also have to be accommodated.

16. No evidence was given about the nature, location and extent of new development of this kind or the replanning of the road system involved. This limited the possibilities of objective criticism open to the objectors, but clearly the whole character of a large tract of land—at present predominantly rural and agricultural—will be completely altered. A reasonable estimate is that some 10,000 acres would be involved.

17. All the evidence submitted to me was that development of this kind in this area would be bad regional planning.

Agriculture

18. There is no dispute that virtually all the land likely to be required for the airport and ancillary development is in one of the highest classifications as agricultural land. It is well farmed. In addition to the loss of land to be devoted to new purposes, there would be further losses due to severance and fragmentation of remaining farm lands. The total loss would be substantial. Evidence was given that noise could cause accident hazards with certain classes of machinery.

House Values

19. I accept the evidence that the value of houses near an airport, in the lower price brackets, in short supply, is at least as high as in a quiet country area. This is, however, poor comfort to people who want peace and quiet.

20. I was informed that hardship is being experienced by people wishing to sell their houses, who are unable to do so because of uncertainty about the airport. A speedy decision is important to such people.

OPINION

21. It would be a calamity for the neighbourhood if a major airport were placed at Stansted. Such a decision could only be justified by national necessity. Necessity was not proved by evidence at this inquiry.

22. In assessing the merits of the proposal it is necessary to balance pros and cons which cannot be evaluated in the same units.

23. In my opinion the evidence justifies the following appraisal of the proposal:—

- (1) The proposal succeeds on the viability of air traffic.
- (2) There are strong arguments against it on the grounds of:
 - (a) Town and Country Planning. No evidence was produced that Stansted was the right place for a traffic focus of this kind and all that goes with it. The evidence was to the contrary.
 - (b) Bad ground access from London. I consider the proposals put forward would be unacceptable to passengers and airlines to an extent that might make the airport of only moderate value.
 - (c) Noise. I believe restrictions would have to be imposed which would materially restrict capacity operation.
 - (d) Change of character of the neighbourhood. This would cause great local resentment, largely on account of noise and traffic nuisance.
 - (e) Loss of good agricultural land. This would amount to many thousand acres.

ALTERNATIVE SITES FOR THE AIRPORT

24. The inclusion in the terms of reference of this issue produced a lot of evidence on the merits and disadvantages both of Stansted and the alternative suggestions, and disclosed a number of important matters which, *prima facie*, have not yet received sufficient consideration. I shall therefore briefly report the evidence and the inferences to be drawn from it.

The alternative sites presented with detailed evidence were:—

- | | |
|-----------------------|---------------------------|
| (a) Sheppey | } Essex County Council |
| (b) Cliffe | |
| (c) Padworth | —The Preservation Society |
| (d) Castle Donnington | |

With less detail the following were proposed:—

- (e) Foulness
- (f) Dengie Flats
- (g) Gunfleet Sands
- (h) Plumstead Marshes.

My opinions on these alternatives have been formed with the advice and assistance of my assessor, Mr. J. W. S. Brancker.

Air traffic routing and control

25. The Ministry experts demonstrated to my satisfaction that the Stansted proposal was the best in permitting the maximum flow of additional air traffic with the maximum margins of safety which conform with the existing airports and traffic routes.

26. I am not satisfied that Cliffe, Sheppey and Padworth are unworkable but under certain circumstances and at certain times loss of capacity would have to be accepted.

27. Foulness, Dengie Flats and Gunfleet Sands are queered by the Shoeburyness firing range as is to some extent Sheppey. Evidence was given by Major General Egerton that removal of the range could not be expected. I have, of course, to accept that evidence although the main thing about Shoeburyness is that it is there. It is difficult to think of a less suitable location for an artillery firing range than the Thames estuary. The range constitutes a barrier to aircraft movement about 20 miles long, 7 miles wide and 60,000 feet high. It is likely that the height will be reduced to 35,000 ft. which will not, however, help the position.

28. I consider Plumstead Marshes too near to London. Castle Donnington is too far from London to be a 'London' airport but this does not mean it cannot play a useful part in the national traffic plan.

Noise

29. Severe nuisance from noise is unavoidable at any location which could be considered a London Airport. No prospect was held out that aircraft are likely to be quieter but I was advised that they are unlikely to be noisier. In general terms, supersonic aircraft are not expected to aggravate the problem although there has not yet been any practical experience.

30. It was generally agreed that the noise problem should be considered against the background of the new airport working to its ultimate capacity of 64 S.B.R. although this may not be achieved for twenty years. It should be borne in mind that current traffic at Heathrow is substantially below this level.

31. It is expected that most people will be affected at Stansted although Padworth would be little better. There is, however, not at Padworth a concentration of development comparable with Bishop's Stortford.

32. Sheppey is the least affected in that a substantial amount of traffic can be routed over water or marsh. If the seasonal occupation of holiday camps and caravan sites is ignored, far fewer people will suffer than at the other sites.

33. Cliffe allows the major approach route to be over water, but the take-off will usually be in a direction which could affect the Medway towns with a high

population. These are not, however, expected to be in the zone where noise is intolerable. The Thurrock area of Essex, north of the river, would also be affected to some extent.

Conflict with traffic from other airports

34. I accept the evidence that Stansted would interfere less with the existing pattern of traffic from Heathrow and Gatwick than Padworth or Cliffe. It would interfere less with Southend than Cliffe, Sheppey or the flats in the Foulness area. I feel unable to comment on the problem of Southend as I understand its development is to be the subject of special inquiry later this year. Obviously, however, any reduction in the capacity of an existing airport is a deduction to be made when assessing the benefit of a new one.

35. Luton is only affected by Stansted. A new airport at Stansted is not expected to reduce the present capacity of Luton but will inhibit its growth.

ACCESS FROM CENTRAL LONDON BY SURFACE TRANSPORT

Roads

36. This most important aspect of the problem was the subject of the most unsatisfactory evidence. Estimates were made of the likely travelling times by car from the several suggested sites to Grosvenor Square (a notional focus) and Victoria. These were estimated against the existing road pattern with likely improvements at off peak periods. The estimates carried no conviction to me for two reasons. The routes from Stansted, Cliffe and Sheppey contained about ten miles within the area of built-up London. The times taken for this part of the journey could vary enormously according to the state of the traffic. Secondly, the volume of traffic generated by the airport itself when running at maximum capacity has not been given sufficient attention—in fact, in the estimates put forward it was not considered at all.

37. The Ministry experts working on the basis of their estimates of the growth of passenger traffic expect the new airport's traffic alone to saturate a dual two-lane motorway in twenty years' time. A competent expert for the County Council who estimates the capacity of the airport, allowing for the use of larger aircraft which seems fairly certain, at more than the Ministry's estimate of passengers stated in effect that the airport could saturate a dual three-lane motorway.

38. No proposal was put before me for any site, including Stansted, which made road access reasonable or indeed feasible if this additional load is superimposed on normal traffic, unless a new and exclusive traffic route to the terminal be created. Access must be acceptable to passengers and carriers. Good road access is, of course, necessary for passengers using their own cars.

Rail

39. Evidence was given on behalf of British Railways that by re-opening existing track and junctions and extending electrification it is possible to make a direct rail link between Bishop's Stortford and Victoria rather surprisingly through

Brixton. I was told that British Railways would be unlikely to do this work and provide the service unless it would pay to do so. I do not think it could pay—certainly in the earlier years of the growth of traffic. To be acceptable to passengers (and airline operators) the service would have to be frequent regardless of the number of passengers carried.

40. A much neater proposal was put forward to connect Padworth with the main line through Reading to Paddington. This is more practicable but suffers the same kind of handicap if it has to be economic.

41. In both cases a train travelling time of about one hour was estimated. In the case of Stansted I regard this as optimistic. The normal peak commuter traffic does not leave much scope for the introduction of a large volume of extra traffic. In neither case was the capacity of the London terminus to accept the additional traffic sufficiently demonstrated.

SUMMARY OF REQUIREMENTS FOR ANOTHER MAJOR AIRPORT

42. No origin and destination survey has been made of the passengers using Heathrow and Gatwick. Before deciding the location of the new airport it is, I think essential to know where passengers are coming from and where they are going to. Insufficient attention has been given to the fact that the problem lies as much on the ground as in the air.

43. It was assumed throughout the inquiry that all passengers not using their own means of transport would be collected and distributed from a terminal or terminals in the West End of London. All suggestions of traffic improvement were designed to make this easier.

44. Forecasts of airport traffic varied considerably but I think it prudent to regard the highest competent estimate as likely; on this basis, when Heathrow and the new airport are running at full capacity—in one hour at peak times in the summer—each could deliver 2,500 people in 100 coaches in West London—it was in fact suggested that they be delivered at Victoria. In addition, a corresponding number will be leaving for the airport. There are not marked peak times for air travellers as for commuters but in the evenings air travel is running at a high level round about the peak commuter period.

45. If Gatwick runs at half the level of the other two airports, some 6,250 people per hour could be directed into London—many, possibly a majority, only wanting to get out again as quickly as possible. This presents a frightening traffic problem.

46. For many journeys, the only practicable airports in the United Kingdom are London, Manchester and Prestwick. This entails many long journeys to London, increasing its traffic problems, merely to reach the airport. Three London airports of high capacity make London a traffic focus for most of the country and a magnet for all sorts of activities to South East England. I hesitate to mention the forecast that a fourth may be necessary.

47. I suggest that, when a passenger survey has been made, a review of the national pattern for the major airports be made. If London is the inescapable

focus, the location of the airport, the collection and distribution of passengers (which will require the co-operation of the airlines who own and run the terminals) should be considered with a target of preventing anyone who does not need to enter central London from doing so.

48. The ideal criteria for a major airport appear to include:—

- (1) Viability from the point of view of air traffic control. This does not mean conformity with the existing pattern which should be reviewed if necessary.
- (2) Convenient access on the ground satisfactory to passengers and airline operators. (Access to Stansted would be inferior to access to Heathrow. Airlines operating there would be at a disadvantage compared with those at Heathrow. A direction to use Stansted would be resented).
- (3) A situation as regards noise which does not inhibit operations. Activities at Heathrow and Gatwick are already limited.
- (4) Conformity with regional planning and a national transport plan. Freight is an increasing problem.
- (5) Sufficient land surplus to airport requirements to allow for expansion and permit recoupment through the rise in values of land required for all ancillary activities. This would also facilitate planning new development so that residential accommodation and schools are kept out of the high noise area and unrestricted night flying is made possible.

The ideal is no doubt unattainable but in so far as any proposal falls short, it falls short of full economic and operational success.

49. In my opinion, a review of the whole problem should be undertaken by a committee equally interested in traffic in the air, traffic on the ground, regional planning and national planning. The review should cover military as well as civil aviation.

Brief Summary of Evidence and Arguments

50. *Sir Milner Holland, Q.C.*, opening for the Ministry of Aviation briefly outlined the conclusions reached by the Inter-Departmental Committee. These were that a third London Airport was needed which in 20 years time would be able to carry a Standard Busy Rate of 64 and that Stansted was the most suitable site. He emphasized that no decision would be taken until this report had been considered by the Government.

51. He enumerated the criteria by which the issue should be judged. The positive requirements are:—

- (1) Compatibility in operation with Heathrow and Gatwick.
- (2) Safety in the air.
- (3) The site must be placed conveniently for air routing.
- (4) Accessibility. A datum of one hour's travelling time from Grosvenor Square was put forward as the maximum acceptable.
- (5) Suitability of the terrain for constructing an airport.

The negative requirements are:—

- (1) Nuisance by noise must be reasonable.
- (2) The scheme must not conflict with regional planning.
- (3) There must not be unreasonable conflict with interests such as agriculture.
- (4) There must not be unreasonable conflict with national defence or scientific research.
- (5) There must not be unreasonable conflict with civil aerodromes.
- (6) Regard should be had for private flying and gliding. In amplification he called attention to the importance of speedy access to the airport if it is to be acceptable to passengers, particularly for those whose flying time is relatively short. He called evidence in justification on the requirements set out above, apart from regional planning, and also that the value of property did not fall when an airport (Gatwick) was put near to it. He urged that Stansted met the essential requirements better than any other site.

52. *Sir Milner called*—

- (1) Captain Vernon Arthur Moore Hunt, C.B.E., who is Director of Control (Plans) in the headquarters of the National Air Traffic Control Service, concerned with both civil and military flying. His evidence dealt with air traffic routing and control and safety margins. This evidence is reviewed in Appendix 7.
- (2) Mr. Frank Longstaff Sawyer who is the principal scientific officer in the Ministry of Aviation. His evidence concerned noise and is dealt with in Appendix 1.
- (3) Mr. Harry Archibald Shaw who is Deputy Controller of the Defence Lands Service in the Ministry of Defence. He gave evidence that, if need be, the military airfield at Wethersfield could be closed.

- (4) Sir John Leigh Charlton Briscoe, Bt., D.F.C., who is Director of Aerodromes (Technical) in the Ministry of Aviation.

He described the existing Stansted airfield, its history and present use.

- (5) Mr. Alfred Joseph Elsey, F.A.I., District Valuer at Reigate. He produced factual evidence that houses in the vicinity of Gatwick Airport had been resold subsequent to the establishment of the port at higher figures than those obtained shortly before. He also reported proposals made for reduction in rating assessments on account of the presence of the airport, particularly after the advent of the VC.10. He regarded the impact as small.
- (6) Mr. Michael Howden Harbinson who is Planning Manager for the Eastern Region of British Railways. He described the existing railway facilities between Bishop's Stortford and London and the possibilities of improvement, including an extension to Victoria. His evidence is dealt with in Appendix 2 and was derived from the investigations of a working party set up at the beginning of November 1965.
- (7) Mr. James William Milne, the chief engineer to the Lea Valley Water Company. He gave evidence that adequate water supplies would be available if Stansted became a major airport.
- (8) Mr. Richard Francis Lloyd Jones who is a partner in Messrs. Norman & Dawbarn and who in particular was responsible for the report to the Ministry on the potentialities of Stansted as a third London airport and for the suggested schemes of development. His scheme was not challenged as such. The objections were to the creation of the airport at all, not to his proposals.
- (9) Mr. Andrew Miller Ker who is assistant Chief Engineer in charge of motorways, B. division at the Ministry of Transport. Mr. Ker gave evidence on road access from West London to Stansted which is dealt with in Appendix 2.
- (10) Mr. Arthur Vincent Davies, Assistant Secretary in the Ministry of Aviation. His evidence dealt with Ministry policy on noise. The Ministry were greatly concerned with the problem and in the Airports Authority Act 1965 the Minister may give direction to the Airports Authority with the intent of minimising noise. The direction may concern location and layout of airports, types of aircraft and control of operation. The evidence did not really help objectors because understandably Mr. Davies could not say what directions would be given during a period of 20 years under consideration. He stated that no site for an airport had been found which did not produce a noise problem, but expressed the opinion that all reasonable restrictions on flying would be imposed, and that grants towards the cost of sound proofing would be considered.
- (11) Mr. George Vinger Hole, Under Secretary in the Aerodromes Planning Division of the Ministry of Aviation. He explained the view of the Inter-Departmental Committee that the third airport needed two parallel runways 12,000 ft. long to cope with planes for which Gatwick was inadequate. He emphasized the importance of the new airport being able to run at capacity without materially reducing the capacity of Heathrow or Gatwick, but accepted that within limits, capacity was

a factor to be balanced against other factors such as amenity. He agreed that larger aircraft, 250 seaters or even 500 seaters, could increase the passenger traffic in relation to aircraft movements very substantially. He agreed access to Stansted would be inferior to access to Heathrow and foresaw problems which might arise if airlines which had to use Stansted felt their competitiveness was reduced as a result. In considering the site of the third London Airport no consideration had been given to the possible location of a fourth.

- (12) Commander Gilbert Vincent Parmiter, River Superintendent and Harbour Master of the Port of London Authority. His evidence related to the practicability of a hovercraft service. He called attention to the traffic problems involved but said a service was practicable.
- (13) Mr. Gilbert Frank Norris, assistant chief engineer of the General Planning Division of the Ministry of Transport. He described the road access problems to Cliffe and Sheppey and estimated travelling times of 76 minutes to Cliffe and 102 minutes to Sheppey. Mr. Norris stated that his estimates were made irrespective of the additional traffic generated by the airport.

53. *Mr. Douglas Frank, Q.C.* appeared for the Essex County Council, Chigwell and Harlow Urban District Councils and Epping and Ongar Rural District Council. He began at a time when conflict with military establishments was a major issue under discussion—in particular the nearby airfield at Wethersfield used by the United States Air Force. I subsequently received a letter from Mr. J. M. Wilson, C.B., Deputy Under Secretary of State for Air at the Ministry of Defence to the effect that if the Government decided to make Stansted the third London Airport, Wethersfield could and would be closed.

54. He contended that the Stansted proposal was made almost entirely from aviation considerations, while the problem was very largely one of town and country planning. He said the proposal was bad planning, bad for agriculture and catastrophic for the character of a rural area of great merit.

55. He supported his objection by proposing alternative sites at Foulness, Cliffe and Sheppey, calling evidence in support of his arguments.

56. *Mr Douglas Frank called—*

- (1) Mr. Frederick Andrew Sharman who is a qualified civil engineer and an associate member of Sir William Halcrow & Partners. He had been instructed by the Essex County Council to examine the Stansted proposal and express a completely unbiased opinion upon it. He called attention to the importance of the project in terms of capital investment, labour requirements, traffic problems and permanent effect on the character of the neighbourhood. While accepting the overall importance of air traffic requirements he believed there was sufficient flexibility latent in the existing pattern to widen the choice of a workable airport site and bring into balance other considerations.

His views on town and country planning are dealt with later in this report in Appendix 3. He demonstrated the importance of curtailing the passenger time spent in journey on the ground. As airspeeds increase, slow and uncomfortable journeys by road are increasingly irksome.

He described the physical nature of the alternative sites at Cliffe and Sheppey. The suggested sites at each are flat and marshy and do not present particular problems in constructing airports. Cliffe can provide 2 runways, possibly a third, but not so easily. Sheppey can provide 3 runways without difficulty. He referred to air traffic problems which were dealt with by Mr. Rofe and surface access dealt with later in Appendix 2.

His evidence on noise is recorded in Appendix 1. He referred to the meteorological statistics for the various sites and shortly made the point that the differences were slight and insufficient to influence a decision. He summarised his views by saying that Cliffe and Sheppey were both practicable as airport sites and from the points of view of regional planning, surface transport and noise were better than Stansted.

- (2) Mr. Thomas Ashton Henderson, F.R.I.C.S., the assistant County Planning Advisor to the Essex County Council. He described the countryside which would be affected by the airport. This is a predominantly rural area containing towns and villages of scenic beauty and historic associations and preserved areas such as Hatfield Forest. The population as a whole has remained static for some time and the policy of the County Council has been to limit growth in this area. He stated his Council's views on planning which are dealt with in Appendix 3. He also detailed the effect on the Stansted area if a major airport were placed there. This included traffic, increased population, noise, ancillary industrial and semi-industrial development, and general deterioration of its present character. He reviewed the alternative sites at Cliffe and Sheppey, calling attention to the relatively low density of population and comparing the natural attractions and amenities of these areas unfavourably with Stansted. He further expressed the opinion that an airport at either of these sites would stimulate desirable development.
- (3) Mr. Royston Barrymore Rofe, the Operations Manager of the International Aeradio Group. He gave evidence on the suitability of Cliffe and Sheppey from the point of view of air traffic. He did not criticise Captain Hunt's evidence on the same subject relating to Stansted. His evidence was directed to showing that Stansted was not the only choice and is dealt with in Appendix 7.
- (4) Mr. Jack Edward Jones, traffic engineer in the County Highways Department of the Essex County Council. His evidence related to travelling times by road from the suggested airports to West London and is dealt with in Appendix 2.
- (5) Mr. Geoffrey Sparrow, F.V.I., senior partner in G. E. Sworder & Sons, surveyors, auctioneers and valuers in Bishop's Stortford. His evidence was directed almost entirely to the damage property owners who wished to sell were suffering while there was uncertainty as to the advent of the airport. In this period of uncertainty he gave instances of the unsaleability of property and the difficulty of obtaining mortgage facilities. He agreed that if the airport were ultimately to be established, it might well be that increased demand would remedy the position of property values.

- (6) Mr. Donald Eric Tanton, F.R.I.C.S., F.A.I., senior partner of Messrs. Offin & Rumsey of Chelmsford and Rochford. He was accepted as an expert on agricultural matters in Essex in particular, and also in the adjoining counties.

His evidence is reviewed in Appendix 4.

- (7) Mr. Walter Bradford Caisley, the managing director of a group of companies operating passenger boats on the Thames. His evidence was on the practicability of running a hovercraft service on the Thames from Cliffe or Sheppey to say Victoria. He estimated a travelling time of 52 minutes from Cliffe and 75 minutes from Sheppey.
- (8) Mr. Thomas Anthony Gawade, a sales executive in the employ of Westland Aircraft followed Mr. Caisley. Their joint evidence was to the effect that a hovercraft service on the Thames was speedy and practicable but it was not established that it could run to a capacity which would have a serious impact on the airport traffic problem. This service is a growing one and, of course, its possibilities may well increase in the near future.
- (9) Mr. Patrick William Pilkington Gee, the honorary secretary of the Hatfield Forest local committee of the National Trust. He gave evidence that Hatfield Forest occupied about 1,000 acres of carefully preserved woodland interspersed by open spaces. About 100,000 people visit it each year and a number of local authorities contribute to its upkeep. It contains wide varieties of wild life and being close to the runways and in the proposed flight paths would be in an area of intolerable noise.

This evidence was not seriously contested.

57. Mr. P. *Boydell, Q.C.*, appeared for the North West Essex and East Herts. Preservation Association. This association represents at least 13,300 people comprised in 70 separate smaller bodies being mostly town and village associations, 40 of which were formed to oppose the airport proposal. He also appeared for Sir Gwaine Baillie, the owner of the Elsenham Hall Estate, Bishop's Stortford College and the Anglican Diocese of Chelmsford.

58. His main purpose was to demonstrate the adverse effects the airport would have on local residents' enjoyment of life and on the rural and agricultural interests in the neighbourhood. He called evidence on planning, noise, surface transport, air traffic and the unusual character of the neighbourhood. He supported his case with evidence that Padworth is a more suitable alternative site, if the research station at Aldermaston is closed.

59. He called attention, when reviewing the nature of the inquiry, to letters and statements by responsible members of the Government that no decision about Stansted would be taken until after the inquiry. Among the correspondence he produced were letters calling attention to the nuisance already caused by the limited use now made of the airport. He contended that the Inter-departmental Committee's Report was based on operational and technical aviation reasons and that insufficient attention had been paid to the other important considerations. He criticised the proposal against the background of the basic requirement enumerated by Sir Milner Holland, particularly air routing, ground transport and noise. He called attention to the problems presented by military airfields and complained that defence considerations prevented him from examining

them fully, but he emphasised that Wethersfield and the other military airfields presented difficulties which even if capable of solution had to be weighed in the balance.

60. *Mr. Boydell called—*

- (1) Mr. Lewis Bingham Keeble, F.R.I.C.S., President of the Town Planning Institute, senior lecturer in town planning at London University.

He pointed out that the siting of the airport was an integral part of regional planning and that it was wrong to consider it in isolation. He also described the varying impacts it made on the region in the way of traffic, building development, loss of amenity and food production. He pointed out that these considerations should be balanced against the purely aviation merits although there was bound to be conflict.

He produced a 'sieve map' the main purpose of which was to eliminate impossible areas for the airport and show the possibles. He used this to show that Padworth was a better site than Stansted on the grounds that it was more accessible and was of low agricultural value.

He expressed the view that the Stansted area was unsuitable for the residential and industrial expansion which would follow a major airport. He disliked the idea of a straggle of development up the Lea Valley which did not fit in with his ideas of the correct spacing of large and medium sized towns. He thought the Blackwater Valley with towns such as Farnham, Camberley, Fleet, Farnborough and Aldershot were suitable for increased development to serve Padworth. He said that unless Padworth is unsuitable aeronautically, it is a better site than Stansted.

- (2) Mr. Allan Howard Stratford who is a Fellow of the Royal Aeronautical Society with a long career in aviation. He had recently produced a comprehensive report for the Yorkshire Airport Development Association on the siting of an airport in Yorkshire.

He criticised the Stansted project on the grounds that insufficient attention had been paid to town and country planning, distribution of population, congestion of surface transport and the cost of air operations. He expressed the view that increasingly the London airports will be dominated by short haul traffic for which Stansted is too inaccessible compared with Heathrow. He described the part that a London satellite airport played in national traffic, and the planning problems that the necessary ancillary development would create and the overall implications of cost. He said that far more research had been done in America and France when considering the site for a major airport than seemed to have been done for Stansted.

He listed disadvantages under the headings of access, location in regard to sources of traffic, air traffic problems, cost to airlines and conflict with other ports. He gave estimates of extra cost to airlines of greater distances. He favoured Padworth.

His evidence is taken into account in Appendix 7.

- (3) Mr. Alec James Leggatt, a member of the Institution of Civil Engineers, the Institution of Structural Engineers and the Association of Consulting Engineers. He is a partner in the firm of Nachsen, Croft and Leggatt.

He gave evidence on the engineering problems involved in constructing an aerodrome at Padworth; and the costs involved. There was considerable variation in estimates of cost by different witnesses.

- (4) Captain James Tate Percy, Senior B.O.A.C. pilot when he retired in November 1964. He became a pilot with Imperial Airways in 1932 and has had continuous operational experience since. He is a past Master of the Guild of Pilots and Air Navigators.

His evidence covered all aspects of traffic in the air relevant to the inquiry of which he has had world wide experience. He discussed inter-line problems. A major point at issue is the successful operation of airports close to each other. Captain Percy dealt with this subject and described conditions at New York and Chicago where similar problems exist.

Captain Percy's evidence has been taken into account in Appendix 7.

- (5) Mr. Harold Thomas Hutchings. A member of the Institute of Transport and for 11 years General Superintendent (Traffic) for London Transport.

He dealt in his evidence with surface access by road and rail to Stansted and Padworth. He was critical of the time that would be taken from Stansted to other ports. He called attention to the problems posed if surface access by rail has to pay its way.

He disagreed with the evidence that a rail journey from Stansted to Victoria could take 60 minutes, thought 90 minutes more likely, and queried the capacity of Victoria to accept the additional traffic. He thought that ultimately a ten minute service would be necessary.

For road timing he estimated 75 minutes from Stansted to Grosvenor Square at off peak times. From Padworth his estimate was 60 minutes, also at off peak times. He estimated a similar time for rail to Paddington and regarded this a better route than Basingstoke—Waterloo.

- (6) Mr. Peter Whitmill Rowe, the headmaster of Bishop's Stortford College since 1957. The school has 450 pupils. He called attention to the disruption of teaching on account of noise. He said that teachers had to stop talking when planes at present using Stansted flew over Bishop's Stortford. He considered sound proofing inappropriate to schools.

- (7) Professor Ellyn John Richards, Professor of Aeronautics and Astronautics at the University of Southampton and Director of the Institute of Sound and Vibration Research. He holds a number of distinctions concerning aeronautics and noise. His evidence is dealt with in Appendix 1.

- (8) Mr. James Wentworth Day. An author and expert on the history of East Anglia, its villages and buildings. Mr. Day described the historic associations and architectural merit of many buildings and villages in the Stansted area also the beauty of much of the scenery. He deplored the change in character of the neighbourhood which would follow an airport and consequent noise problems.

- (9) Sir George Langley-Taylor, F.R.I.B.A., F.R.I.C.S., F.L.A.S., Chairman of the Council for the Preservation of Rural England.

He had inspected the Stansted area and testified to the good quality of the land agriculturally and to the typically rural character of the

neighbourhood and its village activities. He supported Mr. Wentworth Day's evidence. On these and general planning grounds he opposed the Stansted project. From the point of view of preserving rural England he much preferred that the airport should be at Padworth.

61. *Mr. Anthony Cripps, Q.C.*, represented the East Midlands Airport Joint Committee which wished the airport at Castle Donnington developed to be the third London Airport. If I dismiss this case rather shortly, it is not for lack of respect for it. Castle Donnington is 120 miles from London and in the context of this enquiry it cannot be considered a 'London Airport'. A good case was made, however, for a major airport in this position both for passengers and freight which certainly merits independent consideration. The development of Castle Donnington involves the extinction of the village of Diseworth. Subsequent to the presentation of Mr. Cripp's case, strong written representations from the residents in Diseworth were received which should be considered if and when the development of Castle Donnington is further considered.

62. *Mr. Giles Rooke of Counsel* appeared for the Saffron Walden Rural District Council and Borough Council.

Mr. Rooke commented on the unsatisfactory aspects of the proposed Stansted airport from the point of view of site suitability and road access but concentrated his remarks on noise and change of character of the neighbourhood. In cross examination and his closing speech he called attention to the seriousness of the noise problem and the uncertain nature of its impact in view of the lack of certainty in the routes aircraft would take. His main plea was for the people who live in a peaceful rural area and want to go on living in such surroundings. The airport would mean noise and traffic and change in their enjoyment of living. This he contended could not be valued in terms of money or dealt with by monetary compensation.

63. *Mr. A. J. Little of Counsel* appeared for the Rural District Council of Dunmow. He described the district as a large one of some 73,000 acres of truly rural character containing only between 22,000 and 23,000 inhabitants. He referred to the evidence already given to the effect that the land was agricultural of high quality and well farmed and that its villages were distinguished architecturally and historically.

64. He referred in some detail to the evidence on noise and its implications for the Dunmow Rural District Council, calling attention to a number of villages where, on average, an aeroplane will be heard every 2½ minutes during the day, causing noise of over 100 PNdB—a level generally admitted to prevent speech for the time being. He also referred to night flying and cited villages which would suffer over 100 flights per hour at over 90 PNdB. He expressed apprehension about the future development of night flying and the lack of information as to how this would be controlled. He criticised the popularity, effectiveness and cost of sound proofing. He also mentioned the special case of Hatfield Forest—a National Park Trust of about 1,000 acres.

65. He referred briefly to the loss of good agricultural land and the other evidence given on this subject, stressing the lack of information as to the total area to be taken for all purposes arising from the advent of the airport.

66. He regarded the evidence about property values near Gatwick as not comparable with Stansted being mainly cases of lower noise values than likely

at Stansted. In any case he did not consider the fact that somebody else will buy a house any compensation to an owner who finds himself obliged to leave it.

67. He referred briefly to the prospective change in the character of the neighbourhood, its conflict with the views of the County and his Council and with the expert evidence already tendered. He supported Mr. Henderson's views on the advent of industry.

68. He supported the evidence given for the County and the Preservation Society on air routing and surface access and contended that Stansted failed to comply with the Ministry's own requirements. In particular he stated that Stansted failed on the test of a journey to London of not more than one hour, a standard applied by the committee to dismiss alternatives.

69. *Mr. Brown* appeared for Takeley Parish Council. He explained that Takeley was roughly triangular in shape—about 3 miles long and 2 miles wide immediately adjoining the present and suggested airport. A large part of it would be needed for the new port and the residue so near to the runways as to be virtually uninhabitable. The residents already have experience of the noise an aircraft can make, the present traffic being limited and in daytime only. They regard it now as almost intolerable. He pointed out the special problems of the school and church.

He supported Mr. Little's statement.

70. *Mr. Harvey*, Town Clerk of Luton appeared on behalf of the Corporation of the County Borough of Luton, the owners and operators of Luton Airport.

71. He expressed his fear that if Stansted were developed as a major London airport the utility of Luton airport would be reduced, an airport on which large sums of money had been and were being spent and which supplied considerable public service.

72. I think it will be helpful if I interpolate here the factual evidence he called, describing the airport. He called Mr. Charles Kenneth Cole, the commandant of Luton Airport with considerable experience in air traffic and airport control. His evidence was that—

- (1) Luton Airport which is municipally owned has been in operation since 1938 and is licensed by the Ministry for public use. It is mainly used by independent operators for scheduled and charter passenger and freight flights, also for private and club training.
- (2) The airport occupies 676 acres about $1\frac{1}{2}$ miles to the south east of Luton. There is a single all weather runway 7,082 ft. long and 150 ft. wide. Radio and navigational aids include approach radar and it is intended to install an instrument landing system. There is runway and approach lighting with emergency sources of power.
- (3) Passenger handling is at present carried out in temporary buildings but a new terminal building costing three quarters of a million pounds is in course of construction.
- (4) The airport is 527 ft. above sea level and is useful for diversion when the London airports are fogbound.
- (5) The bulk of the traffic is charter flights to the continent, Mediterranean, Canary Islands, and U.K. ports.

- (6) The number of passengers handled per annum has increased from 9,612 in 1961 to 217,853 in 1965.
- (7) He agreed that the airport was in the London Terminal Control Area and that an airport at Stansted would probably only restrict traffic to the north east.

73. Mr. Harvey explained that his Corporation have spent and are committed to spending some £2 million on this airport and are naturally concerned at any prospect of its activities being curtailed. He explained that when the Corporation's original objection was made, they had not seen the revised traffic plan and he accepted that the Corporation's main concern was that the project, if proceeded with, should not develop in such a way as to be detrimental to Luton Airport.

74. Any curtailment of activity at Luton is a loss to the national capacity and its position merits careful consideration in any replanning of London traffic.

75. *Mr. White*, assistant solicitor to the Kent County Council appeared for his county. He made no comments on the Stansted proposal and said that he was present to take note of suggestions by objectors that the airport should be either at Cliffe or Sheppey in Kent. He explained that his County Council was not prepared at present either to support or oppose these tentative suggestions and had not given them the detailed consideration that would be given to a concrete proposal. He forecast that the noise problem, having regard to the centres of population in the region of Cliffe and Sheppey, would be likely to generate serious opposition, and said this point merited the most serious consideration should either of these sites be further considered. He said his council's general views had the support of the local district councils consulted.

76. *Mr. Gray*, Clerk to the Sheppey Rural District Council, appeared for his council. Being in a somewhat similar position to Mr. White, he did not make detailed representations on an outline suggestion that the airport should be at Sheppey. The possible forms that such development could take are easy to assess in general terms and he stated that his council, conscious of its responsibility to the inhabitants would oppose the establishment of a major airport on the island. He stated that such a port would completely change the character of Sheppey in a manner contrary to its present approved plan. During cross-examination of witnesses earlier in the proceedings he had drawn attention to the present nature of the island and the probable effects of noise and traffic.

77. *Air Commodore N. H. Fresson* appeared for the Yorkshire Airport Development Association. He called attention to the time wasted by people in Yorkshire having to come to London airports and made a plea for an airport at Ferrybridge. His arguments do not belong in this report because Ferrybridge cannot be regarded as a London airport. As is the case with Castle Donnington however, I think his proposition merits careful consideration in a national plan.

78. *Mr. Newson and Mr. Fulton* were not local objectors. They put in a comprehensive proposal for the complete re-organisation of London air traffic. It is an imaginative and detailed proposal which is however outside the scope of the inquiry.

A copy was supplied to the Ministry of Aviation who said it would be studied.

79. *Mr. Steel* put forward a scheme for a large airport with four runways at Dengie Flats and a second on Gunfleet Sands. The latter was produced too late for full consideration at the inquiry. Both schemes were directed to the ideal of an airport placed by the sea or in the sea in order to minimise noise problems and avoid conflict with Heathrow and Gatwick. *Mr. Steel* dealt with the civil engineering problems arising at Dengie and gave estimates of cost. The inquiry was not the proper place to investigate the details of the proposal which raised many issues which had no connection with the Stansted proposal and which was not criticised as such. He conceded that his scheme was impracticable unless Shoeburyness firing range were closed and Southend airport also. Surface access would have to be completely re-organised. A copy of the scheme for Gunfleet Sands was given to the Ministry for consideration.

80. *Lord Colville* of Counsel appeared for the Hertfordshire County Council and the North East Metropolitan Regional Hospital Board. He called—

- (1) *Dr. William Duncan Linsell*, Consultant Pathologist at the Herts. and Essex General Hospital, Bishop's Stortford. He said the hospital has 397 beds and serves a population of 63,946. A substantial part of the accommodation consists of temporary single storey buildings with asbestos roofs. He doubted whether buildings of this kind could be sound proofed satisfactorily. He described the serious effect noise has on running a hospital and the treatment of patients and illustrated his views by describing the present experience when the airport is in use. He referred also to the increased difficulty of recruiting staff. He said that the West Middlesex Hospital, near Heathrow, was rebuilding the clinical block with complete sound proofing.
- (2) *Mr. Richard David Clark*, the assistant education officer of the Hertfordshire County Council. He dealt in detail with the noise problem in relation to schools in general and in Hertfordshire in particular. He emphasized the seriousness of the problem (which was not disputed), and described the problems experienced in schools near Heathrow. He expressed the view that a problem arises when there are repeated interruptions above a level of 50 dBA indoors, and also referred to the length of time which interruptions could occupy. He thought the maximum should be lower at certain periods such as examination times.
- (3) *Mr. Lawrence Charles Kitching*, deputy County Planning Officer for Hertfordshire. He also dealt largely with the noise problem in the county. He estimated the increased employment attributable to an airport at 40,000 people, and criticised the location of an airport at Stansted in relation to south east regional planning. He said the airport did not fit in with the County Development Plan, and described the population growths envisaged.

81. *Lord Colville* in his examination of his own witnesses and cross-examination of Ministry witnesses directed his attention almost entirely to the question of noise—particularly in relation to schools. His approach to the problem was to forecast the probable routes aircraft would take, the heights at which they would be flying and the intensity of noise experienced on the ground below. This produced a more specific estimate of the nuisance suffered at particular places. Particularly when north easterly take offs are necessary (about 13% of occasions) this appraisal showed severe nuisance in places outside the N.N.I.

contours considered relevant. He explained that recently constructed schools were of a type having little resistance to sound and that an airport at Stansted would involve the County Council in very heavy expenditure in sound proofing. In his view and that of his witnesses many more people would suffer serious nuisance than the agreed count within the 45 N.N.I. contour.

82. *Mr. Bullough*, the clerk to the Bishop's Stortford Urban District Council. He said it is planned for the population of Bishop's Stortford to increase from 20,670 now to 30,000 in 1973, much of the increase expected to be commuters seeking peace and quiet. He said that there had been members of his council concerned with the local commercial prosperity of the town who were not adverse to the advent of the airport but who made reservations regarding noise. An expert, *Mr. Norman Fleming*, had been consulted, and after hearing his advice and the other evidence given at the inquiry, *Mr. Bullough* had been instructed to object to the airport proposal absolutely on the grounds that the noise would ultimately be intolerable. He called—

Mr. Norman Fleming, acoustical consultant to the Greater London Council, consultant on aircraft noise to O.E.C.D. and a director of the Acoustical Investigation and Research Organization Ltd., formerly head of the acoustics section of the National Physical Laboratory.

He regarded the noise problem as a serious one for Bishop's Stortford and his views are dealt with in Appendix 1. He thought 85 PNdB the limit that should not be exceeded outside a school with windows open, 95 with windows shut.

83. When summing up, *Mr. Bullough* reviewed briefly the evidence on noise and called attention to its seriousness for Bishop's Stortford. He then dealt with road and rail traffic calling attention to the unsatisfactory and uncertain nature of the evidence. The airport would generate a vast amount of traffic on the ground for which no adequate concrete proposals have been made which must create problems for Bishop's Stortford.

84. *Mr. D. Davies* of Messrs. Knockolds, solicitors of Bishop's Stortford, appeared for the Sawbridgeworth Urban District Council. The council has consistently opposed the airport since it was first suggested and he supported the objections made by other local authorities.

Sawbridgeworth occupies 2,678 acres with a population of 5,000 and is a high class residential area. It lies at the nearest point $3\frac{1}{2}$ miles south west of the existing runway and lies in an area of high level of noise. He deplored the general change in the character of the neighbourhood which would follow the advent of the airport and pointed out that the A.11 went through Sawbridgeworth. The traffic created by the airport would be a serious matter for the town. He mentioned the intense local feeling of opposition to the scheme.

85. *Major General Davis Boswell Egerton*, Director General of Artillery gave evidence about the Shoeburyness firing range.

He said it is not possible to move the range elsewhere. The present height of the danger zone is 60,000 ft. but it is likely that this will be reduced soon to 35,000 ft. If firing had ceased for the day, Southend airport was notified and its aircraft allowed to fly over the danger area.

86. *Mr. Laws* appeared for the Southend County Borough Council who own and operate Southend airport. He called—

- (1) *Mr. Eric Thomas Riley*, senior air traffic control officer at Southend Municipal Airport. He said the standard busy rate is now 22 which could rise to 30 in 1975. The maximum movements per hour in the summer peak has been as high as 37.

He said that a third London airport at Stansted would not present any significant difficulty to Southend. Airports at either Cliffe or Sheppey would seriously curtail movements from Southend—the increased distances, delays and other penalties would result in operators ceasing to use the airport. The installation of an instrument landing system would be impossible. He supported his views with detailed evidence. He said the number of movements had declined slightly during recent years but the number of passengers had increased. The airport has a noise problem and is seeking to extend the length of its runway to accommodate jet aircraft.

- (2) *Mr. Anthony Paul Cusworth*, the commandant of Southend airport. He said traffic had increased from 21,545 passengers 1,975 tons of freight in 1954 to 539,381 passengers 70,994 tons of freight in 1964. In 1965 passengers exceeded 600,000.

The corporation has invested over one million pounds in the airport and there are 2,500 employees. In 1965 a profit of £15,790 was made—the estimate for 1966 is £91,395.

It is planned to extend the N.W./S.E. runway to alleviate the noise problem. He agreed with *Mr. Riley* that an airport at Stansted need not necessarily be a material handicap to Southend. An airport at Foulness would in his opinion mean closing Southend. Ports at Cliffe or Sheppey would seriously restrict Southend.

He said that the resident operators were firmly established and that Southend was conveniently situated for its main sources of passengers. The facility to fly over Shoeburyness when permitted was used but not to any great extent.

87. *Mr. Laws* summarised the case for Southend very concisely. It does not oppose the Stansted proposal although it may have some drawbacks, but vigorously opposes the suggestions of Cliffe and Sheppey. The latter proposals would very seriously restrict operations at Southend which is making a valuable contribution to the country's air traffic—over 500,000 passengers a year. The airport is well established, provides a lot of local employment, its operators have made their bases and a great deal of capital has been invested. The substantial loss of capacity at Southend consequent on an airport on the North Kent coast would be a reduction in the value of providing such a port.

88. *Mr. Wallace* appeared for the Country Landowners' Association, the National Farmers' Union and a number of individual farmers including 5 whose holdings lie within the suggested boundary of the airport and total about 1,020 acres of good well farmed land. He pointed out the certainty that a large area of land in addition to the airport itself will be needed for ancillary activities and the complete uncertainty of its location. He said that from the point of agricultural productivity, a worse site could not have been chosen. He contended

that this aspect of the question had not been adequately considered when the site was selected. While conceding that overall national interest should be the deciding factor, agriculture was a major issue to be considered when striking the balance. He quoted official pronouncements to the effect that when selecting land for development poor agricultural should be chosen before good and pointed out that all the suggested alternative sites were inferior to Stansted. He touched briefly on planning and said the airport would encourage the drift of population to the South East and said a change in the use of this land would be irrevocable. He called—

- (1) Mr. Basil Sidney Furneaux who holds degrees and distinctions in the field of agriculture, is a Governor of Wye College and the East Malling Research Station, formerly advisory planning officer (soils) for the south eastern province and member of the Planning Branch of the Ministry of Agriculture, Fisheries and Food—now in practice as a consultant.

His evidence is reviewed in Appendix 4.

- (2) Colonel George Richard Judd, F.R.I.C.S., Governor of the Royal Agricultural College at Cirencester, ex-President of the College of Estate Management and partner in Strutt & Parker, Lofts & Warner.

His evidence is reviewed in Appendix 4.

- (3) Mr. Geoffrey Harry Gowllett who farms 250 acres at the south west end of the present runway.

His evidence is reviewed in Appendix 4.

- (4) Mr. John Scott Latham who has a farm in the north east area of the suggested airport.

His evidence is reviewed in Appendix 4.

- (5) Mr. Geoffrey Walter Brown who farms in Takeley. He gave evidence that the yield from his farm was materially above the national average.

- (6) Mr. Phillip Richard Heyworth, technical director of Hasler & Co. Ltd.

His evidence is reviewed in Appendix 4.

89. Mr. Wallace briefly summarised the evidence laying stress on the nation's need for food and the loss that would follow the airport. He concluded with a plea for the farmers who are likely to be displaced or who would suffer damage.

90. *Mr. Boydell, Q.C.*, appeared for Hockerill College, Bishop's Stortford. He called Miss Alice Eden, the principal of the college. She said that the college is governed by a body appointed jointly by the dioceses of St. Albans and Chelmsford with representatives of the local education authorities. It is a boarding college training women teachers. Founded in 1852 for 60 students it now has 375, in September 1966 there will be 420, extension to 480 is planned, the ultimate capacity is 700. It occupies a site of 24 acres and in recent years has been the subject of expenditure amounting to £350,000. At present teaching has to stop when an unloaded plane goes over. To reinstate the college elsewhere was estimated to cost to the order of one million pounds.

91. Mr. Boydell called attention to previous evidence on noise which was to the effect that in 12 hours—6 a.m. to 6 p.m.—297 aircraft would be heard with an average peak noise of 89 PNdB. He expressed the view, which is substantiated by the evidence, that it may well be that the college would have to close if

Stansted became a London airport. In a boarding college, the noise problem is not confined to the hours of daylight.

92. *Mr. Boydell, Q.C.*, also appeared for the Royal Wanstead Schools. He called *Mr. Gordon Norton*, chairman of the Board of Governors of the Royal Wanstead School Foundation. He said the school was founded in 1827 as a boarding school for boys and girls who needed boarding education owing to abnormal home conditions. The school enjoys Royal patronage and is incorporated under three Acts of Parliament. In 1945 the school bought the Hyde Hall estate at Sawbridgeworth with the mansion for £136,809. With subsequent additions it is counted in the school's assets at £360,000. There are at present 125 girls boarding at Hyde Hall. The Foundation have a plan to transfer the junior and senior boys schools from Wanstead to Hyde Hall at a cost of some one and a half million pounds (from their own resources).

93. Since the Stansted airport proposal was mooted, the school has tried unsuccessfully to find an alternative site. *Mr. Boydell* called attention to the previous evidence that in this area 297 aircraft would be heard in the 12 hours daylight period with an average peak noise of 92 PNdB. This a slightly higher level than at Hockerill College and again it may be the school will have to cease operation. This also is a boarding school and concerned about night noise. Extensive expansion now contemplated must now remain in abeyance or be abandoned.

94. *Mr. Butcher* of Counsel, appeared for *Mrs. Ash* the owner of two farm holdings totalling 435 acres largely within the boundaries of the suggested airport. He called—

(1) Professor Peter Self.

His evidence is referred to in Appendix 3.

(2) *Mr. Peter William Trumper, F.R.I.C.S.*, partner in Cluttons. He described *Mrs. Ash's* holding, its high quality, the money that had been spent upon it and the damage that would follow its fragmentation. On the basis put forward, the residue left to *Mrs. Ash* after compulsory purchase would be of no value.

95. *Mr. Butcher* in summarising his client's case called attention to the inadequacy of compensation in cases of this kind and elaborated Professor Self's planning arguments with particular reference to the transport needs of passengers.

96. *Mr. Brian Knight* of Counsel appeared for *Mr. Ian Robertson*. He called *Mr. Peter William Trumper*. *Mr. Robertson* has a mink farm at Takeley and evidence was given that it could not continue under the noise conditions to be expected if Stansted were the third London airport. *Mr. Robertson* also gave evidence.

97. *Mr. Arman*, the secretary of the Thaxted Society made a statement on behalf of that society. He outlined the architectural, archeological and historical features of Thaxted. He described the beauty of the village and its church and dwelt upon the effect noise and other concomitants of an airport would have to the detriment of Thaxted.

98. *Mr. John Connell* represented the Noise Abatement Society. The general tenor of his argument was the bad effects noise has on people and the need to put airports as far from built up areas as possible. He called Mr. John William Dark, the honorary secretary of the Monorail Group of Great Britain to demonstrate that by means of monorail traffic, airports as far as Foulness could be brought within 20 minutes travel time from central London.

99. *The British Gliding Association* in a written statement objected to the Stansted proposal on the grounds that it would deny members of the association use of a large volume of air space in the Luton—Cambridge—Colchester triangle. The association has some 7,500 pilot members throughout the country and already has considerable restriction on the airspace it can use. In order to give the sport as much facility as possible it proposes a site on the east coast of Essex—Foulness or Bradwell—for the new airport.

100. *Mr. Dimond* on behalf of the Stansted Progress Society said that a number of residents and workers in the area were not opposed to the third London airport being established at Stansted. He produced nearly 1,000 letters to this effect containing reservations concerning change in the character of the neighbourhood and compensation.

101. *Mr. Dreschfield* is the Secretary of the Essex Branch of the Council for the Preservation of Rural England. He expressed the view that the provision of an airport capable of maximum capacity should not be the dominant factor in planning the countryside. The airport should be subordinate to amenity and planning considerations and if these limit the capacity, this should happen. The amenities of rural England should not be valued in terms of money. He disagreed with Padworth but supported Cliffe or Sheppey in that they are by the sea. He foresaw Stansted becoming another Heathrow. He deplored the handicap offered by the Shoeburyness range and advocated a major national traffic plan dealing with the air, roads and the London Docks.

102. *Dr. Needham*, a Fellow of Gonville and Caius College, Cambridge, supported the general case of the Preservation Society. He made a plea for the retention of the present character of the Stansted area.

He referred to the advantages he had seen in other airports throughout the world which were approached over the sea.

103. *Mr. Conrad* speaking for Mrs. Conrad stressed the importance of personal and individual views and happiness as opposed to commercial benefits.

104. *Mr. J. T. Wallace* sent a written statement. He is the owner of Thremhall Priory, Bishop's Stortford and called attention to the damage that would result to this historic early Georgian building by the suggested airport.

105. *Mr. Sydney Jack Bush*, the owner of a farm in Broxted pointed out that a suggested new road would cut his farm in two and make it impossible to work satisfactorily. He referred to the high level of noise, its effect on his holding and on the local church.

106. *Mr. Peter Damer Harrison*, a farmer of Chickney Hall, Broxted farming about 640 acres said that his farm was between the 50 and 60 N.N.I. contours and would be subject to intolerable noise. He fattens some 20,000 turkeys which would probably become impossible and new roads would create serious severance problems.

107. *Mr. Miles and Mrs. Miles*, local residents in Sawbridgeworth. I find it difficult to summarise their statements which ranged widely over the whole problem. While their direct concern is personal, they adopted a broad-minded attitude and did not confine their arguments to this limited field. Their remarks on Day 29 should be read in full in that these are an excellent exposition of the views of serious-minded local residents who have given great thought to the subject.

In general they supported the Preservation Society and the Council for the Preservation of Rural England.

108. *Mr. Bowden* speaking for himself and other local residents, referred to almost all grounds of objection, road transport, planning and population drift, noise, sources of water and power and the indeterminate ancillary development. He referred to his personal problem as a recent purchaser of a house in Takeley who was not led to expect a major airport at Stansted, and expressed the view that sound proofing was not practicable.

109. *Mr. Waterfield* appeared for himself and Miss A. D. Tennant. While objecting in general to the noise and other drawbacks attending a new major airport, referred in particular to the suggested modification to the road B.1051. This, he said, would seriously affect Miss Tennant and apparently abolish his house. He explained that his garden was well known as an outstanding one, often referred to in the press and visited from overseas. He deplored the increase in air travel based on London which he said would soon leave no quiet and habitable areas within 50 miles of London.

110. *Mr. J. W. Clitherow* a resident in Sawbridgeworth, supported the evidence already given that traffic and noise would make residential occupation intolerable. He had previous experience of living near London Airport. He is a research bio-chemist and referred to his personal experience of the trouble caused in hospitals on account of noise.

111. *Lt. Commander Boaks* had in general two lines of thought. The first was that passenger traffic should be directed immediately from the airport in the direction it wished to go and not be channelled to a central London distribution centre. I accept this as very sensible. His second point was that the airport should be by the sea and distribution effected by helicopters using floating terminals on the Thames for those wishing to come to London. I do not feel competent to comment on this, but *prima facie* it seems doubtful if helicopters could cope with the volume of traffic envisaged and they would produce a new noise problem.

He spoke also as the Secretary of the Road Safety Association and referred to the traffic risks of overloaded highways.

112. *Mr. Ellis*, a member of the London Gliding Club, a member of its committee and a former chairman. The club has been established on Dunstable Downs since 1931 and its capital investment in the base is £100,000. He dealt in general terms with the suitability of Stansted as a major airport and advocated a site such as Foulness near the sea. He was concerned with the encroachment on free airspace which followed the siting of a new airport. Captain Hunt who was recalled, agreed that an airport at Stansted would restrict the air space available for gliding from Dunstable. He said that there would still be a free sector for

gliding to the north east. Mr. Ellis explained that a limited sector such as this was only useful when the wind was in a certain direction.

It was conceded that an airport at Stansted would restrict gliding from Dunstable.

113. *The Springfield Residents' Association* submitted a written statement calling attention to the noise problem and the desirability of an airport being by the sea.

114. *The Wasdale Construction Co. Ltd.* submitted a written statement. The company has bought land at Takeley for redevelopment but cannot proceed or make use of their land until the decision is made regarding the airport.

115. *Mr. P. Boydell, Q.C.*, made his closing speech for the North West Essex and East Herts. Preservation Society. He reminded the inquiry of his opening remarks and of the constitution of the society. Formed for the purpose of opposing the airport, it represented at least 13,300 people, probably more.

116. He dealt first with air traffic problems. He did not seriously criticise Stansted in this respect but expressed the view that it had its limitations, particularly as regards supersonic flight to the west, and generally for traffic to the south west.

117. He next referred to access on the ground and said that on the evidence, Stansted failed to meet the minimum requirements specified by the Ministry i.e.—one hour's travelling time from the west end of London. He dealt with rail access to Stansted and said that the evidence failed to prove that sufficiently quick and adequate service could be provided, and commented that the working party on railway access was not set up until November 1965. He referred to Mr. Hutchings' evidence on the limited capacity of Victoria to accept a lot of additional traffic. At this point he contended that failure to comply with reasonable requirements for access should mean that the proposal fails.

He mentioned the difficulty of interline connection between Stansted and Heathrow.

118. He dealt briefly with noise calling attention to the assumptions which the experts had made when making their calculations. They had quite fairly differed on these and there was no certainty as to the restrictions which would be imposed or the paths taken by aircraft.

119. He drew the conclusion from the evidence that an influx of an extra 100,000 people into the area would be likely to follow the establishment of the airport. This would necessitate, *inter alia*, 20/30 new schools. He referred to Mr. Keeble's evidence that a new town to accommodate this number of people did not accord with sensible regional planning.

120. He mentioned that the evidence on agriculture was all against the proposal.

121. He mentioned interference with national defence aerodromes, in particular Wethersfield and pointed out that if Wethersfield could be closed, it presumably would have to be replaced, and would have to be counted on the cost side of any cost benefit study. Also on the same line of thought he said that Southend and Luton would have to be curtailed if Stansted were established.

122. He said that of the six negative tests posed by the Ministry, Stansted failed on four—noise, planning, agriculture and defence. On the position tests, Stansted failed on access and inter-port communications. He then criticised the lack of statistics on the origin and destination of passengers, and said that the information suggested Stansted was not the right place.

123. He referred to certain aspects of cost but not total cost for any suggested site.

124. He explained that in putting the case for Padworth he was not seeking to make a conclusive case that this was the right site, but to make a *prima facie* case that it was an alternative well worth detailed investigation. He reviewed the evidence in favour of Padworth dealing in some detail with the techniques of air traffic control suggested by his witnesses to avoid conflict with Heathrow. He pointed out the merits of Padworth as far as traffic to the west is concerned, and contended that access by road along the M.4 was far superior to the access to Stansted. Also this motorway provided a good link with Heathrow. After quoting the figures of population within the different N.N.I. contours he quoted Professor Richards' remark that Padworth seems to be slightly better than Stansted.

125. Dealing with regional planning he quoted Mr. Keeble's comment that Padworth was close to the biggest mass of under-utilised urban land in south east England, calling for further development which is not the case at Stansted. As far as loss to agriculture is concerned, Padworth is far better than Stansted. He accepted that Aldermaston was an obstacle but not an insuperable one. As far as conflict with other airfields is concerned, he said that if that problem can be solved at Stansted it can certainly be solved at Padworth. Padworth was far more conveniently placed for serving passengers not coming from London than Stansted.

126. He concluded by dealing briefly with the objections by the Berkshire and Hampshire County Councils and other local authorities.

127. *Mr. Douglas Frank, Q.C.*, made his closing speech for the Essex County Council. He criticised the evidence of the Ministry witnesses as being too partisan. He said his case was not to demonstrate that Cliffe or Sheppey should be the third London airport but, as Mr. Boydell had said for Padworth, to make a case that they are well worth further investigation. There can be no site for the airport which is free from objections—the tests to be applied can only be comparative.

128. He commenced by referring to regional planning. The airport at Stansted would cause a complete change in the character of the neighbourhood from agricultural to industrial involving an increase in population estimated variously from 40,000 to 150,000. Such a generation of employment was contrary to Government policy for the south east. He mentioned the vast volume of traffic which will have to be handled and the inadequacy of the proposals. Special means of access by special roads, monorails, etc. will be necessary and a site should be chosen which makes these as economic as possible. At Stansted, such communications would serve Stansted only, it does not lie on a regional pole

of growth. He said the great expense of new communications would be far more economic along the north Kent coast.

129. He contrasted the rural character of North West Essex, its towns, villages and buildings with Cliffe and Sheppey which he said were marshlands with no particular amenities.

130. He referred to agriculture and the undisputed evidence that perhaps 10,000 acres of very good productive land might be lost at Stansted.

131. Mr. Frank dealt briefly with the noise problem and pointed out that far fewer dwellings lay within the 45 N.N.I. contour at Cliffe and Sheppey than at Stansted. He also said restriction on rate of climb would not be necessary at the Kent sites.

132. On the subject of road access, he said that at no site would the existing and proposed roads be adequate. On the evidence about existing access, Cliffe was the quicker journey. He reiterated that new means of access would be necessary and that this should be provided where it has the greatest overall utility. He referred to the evidence on the practicability of a hovercraft service on the Thames to Cliffe or Sheppey and said that such a service could contribute to the carriage of passengers. He thought it carried more weight than the suggested rail link from Stansted to Victoria.

133. He spoke at some length on air traffic control. He pointed out its flexibility and quick possibilities of change with improved techniques and improved design of aircraft. He did not pretend that the suggested schemes for Cliffe and Sheppey were the best possible but defended his witnesses' views that they were workable and capable of development. He referred to Shoeburyness and said that if it cannot be moved, it can be avoided. As far as Southend is concerned, he said its future in any case had still to be determined; by analogy with American airports it seemed possible for airports to live close together with high capacity. A traffic reduction at Southend need not be taken up at the new London airport—there are other civil airports which could absorb it.

134. Mr. Frank reviewed the problem of conflict between Cliffe and Heathrow, particularly when the two airports were obliged to operate in opposite directions. He explained his witnesses' evidence that this conflict could be avoided by new A.T.C. techniques and alternatively said it was a penalty so small that it could well be carried if other considerations rendered it desirable.

135. He criticised the position with regard to military airfields, commenting that the difficulties could apparently be overcome in East Anglia but not elsewhere.

136. In conclusion, while admitting that Stansted had some advantages in the matter of air traffic control, he contended that improvements in aeroplanes and control techniques were bound to take place which would eliminate these.

He made a plea for people faced with financial loss on their property and

suggested that, when a decision has been made on a site, a purchase notice procedure should be set up on equitable terms.

137. *Sir Milner Holland, Q.C.*, made his closing speech for the Ministry of Aviation. Early in his speech he rejected Mr. Franks' contention of partisanship on the part of the Ministry witnesses, quoting from the evidence in justification.

138. Dealing first with air traffic control, he compared and contrasted the qualifications of the various witnesses. Captain Hunt and Mr. Rofe he accepted as fully competent to give evidence on air traffic control. While accepting Captain Percy as a pilot of very great experience, Sir Milner did not accept him or Mr. Stratford as experienced in operating traffic control.

139. He emphasized that a third London airport involved very large capital outlay and that partly on this account and partly for the reputation of the service, it should be able to maintain maximum operational capacity consistent with safety at all times. No site should be considered which has built-in difficulties. He quoted evidence from Captain Hunt and Mr. Rofe that Stansted was reasonably free from such difficulties in relation to conflict with other airports and traffic routes.

140. He reviewed the evidence on meteorology and said that this showed Stansted to be quite satisfactory from this point of view. He dealt in some detail with Southend airport and demonstrated that the present traffic there would be very little affected, but future growth might be inhibited. Stansted would not however remove traffic from Southend which would have to be transferred elsewhere. He quoted Mr. Laws as saying that Southend offers no objection of substance to the Stansted proposal. It has some difficulties already which would not be increased by Stansted.

141. Referring to several sites suggested he accepted that each might individually be specially suitable for traffic in certain directions and less suitable for others. The opportunities for traffic to the south were limited at Stansted but this did not prevent it running to capacity. He recited evidence to support this statement.

142. He discussed the arguments that Padworth being west of Stansted provided a shorter and cheaper flight for supersonic aircraft to America, while admitting the geographical fact he did not consider it a material factor. Nothing was known yet about supersonic travel and it will probably go in all directions.

143. Sir Milner referred briefly to the military airfields in East Anglia. The Ministry of Defence has said that Wethersfield can and would be closed if necessary. It must be accepted that security reasons prevent examination of the other airfields. Captain Hunt, having the necessary knowledge, says there will be no interference. While dealing with interference he mentioned the gliding club at Dunstable and said that some limitation of its activities would be inevitable with an airport at Stansted. Incidentally Padworth would interfere with the gliding club at Lasham.

144. He next commented on the proposals for Cliffe and Sheppey. The objections to these sites were (1) conflict with Heathrow in the case of Cliffe (2) reduction in the capacity of Southend (3) the presence of the Shoeburyness range (4) conflict with traffic to the east from Heathrow.

- (1) He pointed out that Heathrow and Cliffe were too close together for the accepted pattern of control to allow simultaneous landing to the West at the former and landing to the East at the latter. This meant loss of capacity on an estimate of 12% of occasions in the summer and 9% in the winter. He described this as an impossible handicap to accept. He criticised the suggested remedies for this difficulty.
- (2) Cliffe would interfere with Southend and was too cramped a site to provide a third runway to take the displaced traffic. Sheppey also would seriously reduce the capacity of Southend.
- (3) The Shoeburyness range was an inescapable obstacle which complicated traffic control and added to the length of journeys.
- (4) The north Kent coast is in the wedge between Red one, Blue twenty-nine and Amber thirty, very busy routes. Traffic to and from Cliffe or Sheppey would have to use already crowded airspace.

145. Sir Milner next turned to Padworth and pointed out that it was an impossibility unless the research station at Aldermaston were abandoned. Apart from this Heathrow and Padworth are only 21 nautical miles apart. This gives rise to conflict between planes leaving Heathrow to the west and planes landing to the west at Padworth. Furthermore there would be conflict between traffic leaving Padworth to the west and incoming traffic to Heathrow along Green one and Red one. It is vitally important not to inhibit Heathrow.

146. He reviewed the pattern of control at New York and Chicago, where airports are close together, and rejected it as suitable here. He criticized and rejected the solutions put forward for resolving the conflict problems as not being safe. He dealt at some length with the suggestion that vertical separation could be obtained by having different angles for the landing glide paths. He referred to the air transport command airports in the neighbourhood.

147. Sir Milner reviewed the evidence on road access to Stansted and the alternative sites and conceded its unsatisfactory nature. The conclusion could be reached that existing roads and contemplated improvements would prove inadequate and be soon overloaded. This could lead to the view that a new and exclusive means of travel would have to be devised—such as a monorail. In this case the lineal distance between airport and terminal becomes a major factor.

148. He said that in estimating likely travel times it would be reasonable to anticipate further improvements as they became necessary.

149. He said that the difficulties likely to be encountered in road access, called attention to the importance of there being rail access also. He discussed this

in general terms and called attention to the fact that a rail link must be capable of accepting extra traffic. He said that it had not been disputed that a rail link to Stansted was possible, which could serve Kings Cross and Victoria.

150. He mentioned the suggestion that hovercraft on the Thames could serve Cliffe or Sheppey. He did not think it could make a significant contribution to handling a major airport's traffic. Monorail was discussed briefly and its high cost mentioned.

151. Sir Milner said the importance of inter airport traffic should not be overstressed. Admittedly communication between Stansted and Heathrow was not good. The only solution to this problem was to put the airports close together which created other problems in the air.

152. On the subject of noise he said that noise is inseparable from a major airport. The problem was serious, could not be ignored but will arise wherever the airport is placed. He said the problem was considered at the inquiry on the basis of the airport running to capacity which is not expected for 20 years. During that time much may be learnt to minimise the nuisance. In assessing the position assumptions have had to be made as to the noisiness of aircraft in years to come and the techniques of flying them. There was little difference between the experts on the basic assumptions to be made other than Professor Richards' fear that aircraft would not adhere to specified routes designed to reduce noise effects. If planes 'fan out' after take off, the area of high noise is increased—in particular things are worse in Bishop's Stortford. This fear was thought to be unreasonable. Sir Milner thought the noise and number index devised by the Wilson Committee was the correct method of assessing nuisance and not to consider the height and position of individual aircraft. He drew a distinction between general nuisance and cases where communication by speech as in schools is imperative. He conceded the importance of these special cases but said they were unavoidable and the solution has to be found in design of the buildings. He pointed out that the problem was not peculiar to Stansted and existed wherever the airport is placed. He contended that Stansted is slightly better than Padworth or Castle Donnington from the noise angle. Cliffe was about twice as good—Sheppey better still. For every one person annoyed at Sheppey there would be 2 at Cliffe and 4 at Stansted. He said that whereas Stansted had Bishop's Stortford, Cliffe had Gravesend and Sheppey Sittingbourne.

153. Sir Milner commented on the planning evidence given on behalf of objectors and found difficulty in reconciling differing expressions of opinion. He criticised the idea of linear development along the Thames estuary, a form of development deprecated in the direction of Stansted. Evidence had been given that industry was not likely to be attracted to Stansted. In that case a new town was not necessary and the unavoidable increase in population could be housed in additions to the nearby towns. He did not criticise Padworth on planning grounds. It was accepted that the Padworth land was less important agriculturally. He conceded that the Stansted project involved the loss of a large area of good agricultural land.

154. In conclusion he referred very briefly to the suggestions for Castle Donnington, Dengie Flats, the Newson Fulton scheme and the Ferrybridge proposal from the Yorkshire Development Association. These he said were neither local objections nor proposals for a London Airport.

I have the honour to be,

Sir,

Your obedient Servant,

G. D. BLAKE,

Inspector.

3rd June, 1966.

Appendix 1 Noise

155. Four experts on this subject were called

Mr. F. L. Sawyer called by Sir Milner Holland

Mr. Sharman called by Mr. Frank

Professor Richards called by Mr. Boydell

Mr. Fleming called by Mr. Bullough

All four witnesses adopted the same technique based on the Wilson Committee's Report made in July 1963 and their views were consistent having regard to certain basic assumptions each had made. These varied in two respects—the likely routing of planes and the level of noise which is tolerable. Noise was assessed by a Noise and Number Index (N.N.I.) which takes account both of the intensity of noise and the frequency with which it occurs. This was accepted as the best method of presenting an overall assessment of the problem when noise occurs intermittently. The same index figure however can represent infrequent loud noises or a larger number of smaller noises.

156. I found it difficult to relate the N.N.I. figure to human reactions and at my request the four experts prepared an agreed schedule showing, in the Stansted area, the intensity of noise to be expected when aircraft were operating, in perceived noise decibels (PNdB), and the number of times it would occur at a number of selected sites. The sites selected were mostly schools, being typical of buildings where speech must be audible over a distance. I found the schedule very disturbing. Mr. Sawyer said that half of the 43 schools chosen would have to close as would the Herts. and Essex Hospital.

157. Contour maps were prepared showing the levels of the N.N.I. figures around the airport and also for the alternate sites. These showed the intensity of noise falling off rapidly to the sides of the runways but extending at high level in the direction of flight. The four witnesses were highly competent in the realms of an inexact Science and their plans were for all practical purposes very similar. Opinions varied as to whether a specified degree of noise caused greater annoyance in an area of quiet background than in one where background noise was higher. I formed the purely personal opinion that noise is more objectionable in a quiet rural area than in a town.

158. Mr. Sawyer said that it was to be expected that the noise conditions around Stansted would be similar to those around Heathrow. Conditions at Heathrow are known while it is running at a standard busy rate less than is ultimately expected at Stansted.

159. Mr. Sharman referred to the noise contour maps for Stansted, Cliffe and Sheppey and pointed out the noise problem was greater at Stansted than at Cliffe and greater at Cliffe than at Sheppey.

160. Professor Richards said that it is pointless to consider the problem against existing conditions and called attention to the way in which the problem has developed at Heathrow. He considered 35 N.N.I. to be a reasonable datum in urban areas above which nuisance is material; and that this datum should be lower in the countryside than in an urban area, say 25 N.N.I. which can occur 10–15 miles from the airport. The area included by his 25 N.N.I. Contour is

vastly greater than that enclosed by Mr. Sawyer's 50 N.N.I. He distrusted the Ministry assumption that planes would travel straight for 12 miles on take off.

He speculated on the likely effects of supersonic aircraft making it clear that there is little information available. There was general agreement that the Concord would probably be noisier, climb more steeply and produce a noise pattern shorter and wider than current jet aircraft. He discussed Padworth but made no claim that it was far better than Stansted. There is however no Bishop's Stortford at Padworth. However he preferred Padworth.

161. Professor Richards said that any land locked airport was bound to cause serious noise problems for a large area and suggested every possible search for a site by the sea. He put 90/95 PNdB as the limit for real interference with speech close together.

162. Mr. Sawyer disagreed with the figure of 25 N.N.I. as the rural datum which he considered should be 45 N.N.I. in both urban and rural areas. He very fairly pointed out the difficulties in defining the noise limit (PNdB) which constituted interference with speech in different circumstances; and said that the N.N.I. figure may not be the correct standard for judging schools. The level of intruding noise, provided it occurred sufficiently often was probably a better test. Experiments on sound proofing schools at Heathrow were being made, but no positive results were yet available.

163. Mr. Fleming gave very well balanced evidence. He thought the sufferable limit out of doors was 80-85PNdB for schools. He regarded the likely position in Bishop's Stortford as serious. All schools would need double windows and air conditioning. His views fell in the middle category and could well be accepted. He made a special plea that, should the Stansted project proceed, every effort should be made to enforce techniques which minimise noise.

164. Mr. Kitching dealt with noise, not so much on the N.N.I. basis but on the grounds of frequency and intensity of noise regarded separately. His evidence demonstrated the wide spread effect noise could have in the county.

165. Table C, produced by the Essex County Council, is as follows. These figures were generally accepted as correct and give some fair comparisons of the number of houses and people within the N.N.I. Contours 45-60. It was not accepted by the objectors that the 45 N.N.I. Contour included all places seriously affected.

Third London Airport Noise Contours

Numbers of dwellings—comparison on the basis of Ministry of Aviation's noise contours for Stansted and Sir William Halcrow and Partners' noise contours for Sheppey and Cliffe.

		Stansted	Sheppey	Kent	Cliffe Essex	Total
Within the 60 N.N.I. contour	.. ..	250	324	223	—	223
Between the 55 and 60 contours	.. ..	580				
Between the 50 and 55 contours	.. ..	2,120	91	356	563	919
Between the 45 and 50 contours	.. ..	4,010	1,029	870	441	1,311
Total	.. ..	6,960	1,444	1,449	1,004	2,453

Note: Chalets, caravans, holiday camps and institutions have been excluded from these figures.

Revised table to replace that in Mr. T. A. Henderson's Statement of Evidence.

Comparison of Area within the 45 N.N.I. Contour

(on basis of 64 movements an hour S.B.R.)

	<i>Sheppey</i>	<i>Cliffe</i>	<i>Stansted</i>
a. Resident Population	4,500 + say 500 at Eastchurch prison	7,500 + say 500 at Orsett Hospital	21,000 + say 500 at Bishop's Stortford Hospital
b. Area of uninhabited marshland	20 square miles	14½ square miles	None
c. Area of water, sand etc.	14 square miles	18½ square miles	None
d. Buildings of Architectural and Historic interest excluding churches	40	96 (including 1 in Grade 1)	540 (including 6 in Grade 1)
e. No. of schools	4	4	26 (including 4 secondary schools)
f. Hospitals	None	1 (six miles from runway)	1 (2 miles from runway)

Note: At Sheppey there are 1,845 chalets, 1,279 caravans and a holiday camp capable of accommodating 1,000 persons, within the 45 N.N.I. contour.

There is also a holiday camp within the 45 N.N.I. contour for Cliffe but the numbers of chalets within that contour have not been ascertained.

There are 200 caravans within the 45 N.N.I. contour for Stansted.

Appendix 2 Surface access

166. Mr. M. H. Harbinson, Planning Manager for Eastern Region British Railways. He described the existing two routes from Bishop's Stortford to Liverpool Street. A spur to the airport is practicable. By opening junctions which have been closed, the Lea Valley line could continue through Tottenham, underneath Kings Cross through Farringdon, underneath Holborn Viaduct to the Southern system near Blackfriars thence to Victoria via Loughborough junction and Brixton. With these improvements he estimated a possible non-stop journey time—Stansted to Victoria—of about one hour. The existing services are inadequate. The improvement would no doubt have to be economically justified. Estimates of journey times were made against existing timetables. This proposal needs much more study and complete reorganisation of traffic on this line would be involved. The airport traffic cannot just be added to this existing load.

167. Mr. Ker explained the proposed route of M.11 and also the former proposal up the Lea Valley. He stated that the present A.11 was poor and inadequate. He described the route traffic could take from Stansted to West London on the assumption that contemplated improvements take place. The dual three lane M.11 would be needed irrespective of the additional airport traffic—the former proposed route would have to be kept in reserve. He estimated a road travelling time from Stansted to Grosvenor Square at 65-80 minutes at off peak times and conceded that at peak times it could be very much more. The evidence did not stand up well to cross-examination. He agreed that the concentration of traffic at a West London terminal presented a serious problem.

168. Mr. Sharman considered the Norman and Dawbarn estimates of traffic to be too low. He estimated that in 1975 airport traffic would require the whole capacity of a class C.1 road—in 1980, the capacity of a B.1 dual 3-lane highway, and in 1985 a full dual 3-lane motorway.

169. He proposed Victoria as the terminal for Heathrow, Gatwick and the new airport.

170. When dealing with Cliffe and Sheppey he pointed out that motorway spurs could be made connecting with the M.2, A.2 route to London. Railway links could also be provided joining the route to Victoria.

171. He contrasted the road access from Stansted with that from Cliffe and Sheppey and expressed the view that entry through the congested London area was easier from the south east than from the north or north east.

172. He further called attention to the possibility of the river Thames as a traffic route perhaps by the use of hovercraft. With less conviction he mentioned the possibility of a monorail link to London. He agreed that access from terminal to airport was of prime importance, and estimated road travelling times to Victoria at Stansted or Sheppey 115 minutes, and Cliffe 90 minutes.

173. Mr. J. E. Jones gave evidence on road travelling times which broadly corresponded with Mr. Sharman's. Mr. Jones had made test journeys in late October which enabled him to agree that 115 minutes to Stansted or Sheppey and 90 minutes to Cliffe were reasonable. He very fairly stated that the times would be longer when the load is heavier and did not reflect the extra traffic

from the airport itself. He expressed the view that traffic in general should be easier south of the Thames than in the north. He stated that he believed that the 57 miles from Sheppey to Grosvenor Square would eventually be possible by car in one hour.

174. *Mr. Hutchings* emphasized the vital importance of convenient surface access to an airport and said Stansted did not meet this requirement. He related his estimates of time to the existing roads and known contemplated improvements. Considerable improvement of local roads around the airport would be necessary. He estimated travelling time, Stansted to Grosvenor Square at 75 minutes at off peak times. It might be 30 minutes longer in peak hours. He pointed out the bad road connections from Stansted to Heathrow and Gatwick. He said that experience at Heathrow had proved the need for rail access as well as road. Expenditure on new rail facilities exclusively for the airport would not be economic, existing services would have to be adapted. He criticised the rail access that could be provided for Stansted and said Liverpool Street was unsuitably located as a terminal. He thought it impossible to fit a new through service, as suggested, to Victoria which would be acceptable—it would be too circuitous and slow. He criticised monorails on the grounds of cost.

175. He saw advantages at Padworth in collection of passengers, road access to London and Heathrow on the M.4 and rail access through Reading to Paddington. He put the off peak time by road under existing conditions at 60 minutes and a possible time by rail to Paddington as the same.

176. *Mr. Norris* gave estimates of road travelling times from Cliffe and Sheppey respectively of 76 and 102 minutes at off peak periods. These estimates did not allow for the increased traffic generated by the Airport.

177. Written Evidence was given by the Ministry through counsel that 41% of the passengers using Heathrow use the Coach Service to the London Terminal. B.E.A. allow 40 minutes for Coach travel to the airport. B.O.A.C. allow 45 minutes from their terminal at Victoria.

Appendix 3 Planning

178. Mr. Sharman expressed the view that M.11 should not be an axis for further urban and industrial development. It is on its own a necessary part of the traffic system of this county. He contrasted it with the A.2, M.2 route which is necessary to serve existing residential and industrial development along the Thames estuary; and pointed out the importance of the effect of a motorway on other aspects of planning. In his opinion the Thames estuary is a natural axis for transport activities and industrial development which should be fostered while leaving north and north-west Essex its predominantly rural character.

179. He suggested that the natural site for a new airport should be in the region roughly bounded by Basildon, Dartford, Chatham and Southend.

180. Mr. Henderson said that the Essex County Council had consistently used its powers to preserve the character of the neighbourhood. Its policy has been to direct development to the South and South East of the County and preserve a wedge of open country between the trunk routes to Cambridge and Colchester. The Standing Conference on London Regional Planning has specified north-west Essex as an area to be guarded against development.

181. He stated that the County planning views were that industry and development should be at Thames side which was the natural urge and that an airport in the estuary would be of value to such development. There was no corresponding need at Stansted. He was unaware of any industry wishing to be located in the Stansted area.

182. Mr. Keeble said that the siting of a large airport was a matter of major integral importance in regional planning and cannot be considered in isolation. It is wrong to make planning decisions of regional importance piecemeal. He described the effect of an airport on the neighbourhood when it is placed.

183. He had prepared a 'sieve map' which showed which sites were possible and which were not; and narrowed the field of search. He then outlined the factors to be borne in mind in selecting a site; including the housing and servicing the large population which he put at 80,000 which would follow the choice.

184. He said that the spatial distribution of larger towns was a vitally important part of regional planning and that large scale development at Stansted just does not fit in with this. There would be a danger of the continuous built-up area of London pushing out another great limb in this direction. Expansion of nearby towns would be better than a new town but suffers from the same basic disadvantage. He called attention to the importance of access and the lack of information about it and referred to this as a weakness in the case for Stansted.

185. If suitable on aeronautical grounds, Padworth had great advantages on planning grounds being near to the biggest mass of urbanised but under-utilised land in the South East. He referred to the chain of towns consisting of Camberley, Frimley, Farnborough, Aldershot, Farnham and Fleet. He thought this area could be developed to cope with the population following an airport.

186. In a written statement the Berkshire County Council contested this view which it says is entirely contrary to its plan for the County. The statement also called attention to the noise problem.

187. Professor Peter Self gave valuable evidence both on a regional and national basis. He surveyed the classes of passengers who would be using the airport with special reference to transport from their points of origin to the airport and the need or otherwise for them to come into Central London. He pointed out the difficulty of providing adequate access to Central London and suggested that too much unnecessary attention was paid to it. Stansted was not well placed for direct access by many passengers.

188. At present most local travel originated on the west side of London for which Heathrow was convenient. In the course of time traffic from the east side of London will probably develop and an airport on Thames-side would be much more convenient.

189. Stansted does not lie on one of the regional poles of growth from London, however on the contrary it forms a natural and valuable regional lung. If the airport is formed, far more people will ultimately be subject to noise than any present count. If possible an airport should be by the sea.

190. The airport will stimulate development and industrial growth and this is an area where it is definitely not wanted from the national point of view. Even from the regional point of view, this is quite the wrong place to stimulate development.

191. The airport would be a magnet attracting business and economic activity to London and the South East which is contrary to Government policy. He described the advantages of putting the magnet elsewhere both from the point of view of the national plan and convenience of provincial passengers. The same merits applied to freight.

Appendix 4 Agriculture.

192. Mr. Tanton had surveyed in considerable detail the agricultural merit of the Stansted area and also the Cliffe and Sheppey sites. His evidence was shortly to the effect that damage to agriculture could hardly be greater than it would be at Stansted. At Cliffe he considered the higher land to be good but the marsh area where it is suggested the airport be put, only mediocre. He found the position at Sheppey very similar to that at Cliffe. He expressed the view that problems arising from fragmentation of farms would be less at Cliffe and Sheppey than at Stansted.

193. Sir George Langley-Taylor supported the view that the land at Stansted is of high quality.

194. Mr. Furneaux had surveyed the Stansted area in detail and had made many test borings in order to sample the soil. He described this as chalky boulder clay of unusual depth considerably greater than the average for Southern England. He explained the merit of this in permitting deep rooting and the retention of moisture, describing the characteristics of soil in detail. He considered the land to be of high quality, adaptable and well farmed—the kind of land that produced most of our food.

195. He described conditions in the Heathrow area. This was formerly good land as is the remaining farm land surrounding it. He described the handicaps this land suffered from its adjacency to urban development. These included wanton damage by trespassers to crops and machinery and the deposit of large quantities of litter.

196. He knew the north Kent sites in a general way but had not made a detailed survey as he had at Stansted. There is some good land there but he considered it inferior to Stansted.

197. Col. Judd elaborated Mr. Furneaux's reference to the conditions prevailing around the Heathrow development, in relation to the establishment of an airport at Stansted.

198. He estimated that the airport and all the forms of development which would follow it would give rise to an increase in population of 150,000 (this figure was disputed by the Ministry). This would in itself require a great deal of land in addition to the airport itself and give rise to serious problems for the immediately surrounding land. In addition to the factors mentioned by Mr. Furneaux he described the trouble caused by a great increase in road traffic and the risk of spreading disease among cattle.

199. He said the position with regard to agricultural labour was already difficult and would become worse if subject to competition from the airport and industry.

200. Mr. Gowlett explained the serious and costly interference with his farming operations consequent on the siting of an I.L.S. localiser on his land outside the airport. Heavy restrictions are placed on what he can do. It seems likely however that if Stansted becomes a major airport, this equipment will be within the airport boundary.

201. He referred also to the interference he suffers because of landing lights placed in his arable fields. These interfere with ploughing and cause trouble with weeds. These grow around the standards and are spread by the tractors. Questioned about noise, he said this was severe—it interfered with telephone conversations and could lead to his staff misunderstanding his instructions, which could be serious. It did not interfere seriously with animals.

202. Mr. Latham explained that he had received substantial grants from the Government for improvements, mainly drainage which would be wasted if his farm were incorporated in the airport. He referred to the noise hazard with agricultural machinery. Some of these gave a warning noise when something went wrong which might not be heard. Sometimes a farm hand would fall off a machine and it could be very important that the tractor driver heard his cries at once.

203. Mr. Heyworth gave evidence on the national need for food production, in particular, cereals, and said that if 10,000 acres were lost, 60 % of which were cereals, the loss could be 11,000/12,000 tons.

Appendix 5 List of Appearances.

Sir Eric Milner-Holland, Q.C.
 Mr. D. P. Kerrigan for ... Ministry of Aviation

Witnesses called:

Captain Hunt (Director, National Air Traffic Control C1)
 Mr. Sawyer (Ministry of Aviation)
 Mr. Shaw (Ministry of Defence)
 Sir John Briscoe (Ministry of Aviation)
 Mr. A. J. Elsey (District Valuer, Reigate)
 Mr. Harbinson (British Railways, Eastern Region)
 Mr. Milne (Lea Valley Water Company)
 Mr. Lloyd-Jones
 Mr. Ker (Ministry of Transport)
 Mr. G. F. Norris (Ministry of Transport)
 Mr. A. V. Davies (Assistant Secretary, Ministry of Aviation)
 Mr. Hole (Under Secretary, Ministry of Aviation)
 General Edgerton
 Commander G. V. Parmiter (Port of London Authority)

Mr. Douglas Frank, Q.C.
 Mr. D. Keen for ... Essex County Council

Witnesses called:

Mr. F. A. Sharman (of Sir Wm. Halcrow)
 Mr. Henderson (County Planning Advisor)
 Mr. R. B. Rofe (International Aeradio Limited)
 Mr. J. E. Jones (County Surveyor, Essex County Council)
 Mr. G. Sparrow
 Mr. D. E. Tanton
 Mr. W. B. Caisley
 Mr. T. A. Gawade
 Mr. P. W. P. Gee

Mr. Anthony Cripps, Q.C.
 Mr. Peter Crocker for ... East Midlands Airport Joint
 Committee

Witnesses called:

Mr. J. M. Pearson (Assistant Engineer, Derbyshire)
 Mr. E. C. Dyer (Airport Director)

Mr. Giles Rook for ... Saffron Walden Rural District
 Council and Borough Council

Mr. Peter Boydell, Q.C.
 Mr. M. Mann
 Mr. M. Harrison for ... North West Essex and East
 Hertfordshire Preservation Society

List of Appearances (*contd.*)

Witnesses called:

Mr. Lewis Keeble
 Mr. A. H. Stratford
 Mr. A. J. Leggatt
 Captain J. T. Percy
 Mr. H. T. Hutchings
 Mr. P. W. Rowe
 Professor E. J. Richards (Southampton)
 Mr. J. Wentworth Day
 Sir George Langley-Taylor

Mr. A. J. Little, Clerk of the Council	for	...	Dunmow Rural District Council
Mr. G. Brown (Vice-Chairman)	for	...	Takeley Parish Council
Mr. A. D. Harvey (Town Clerk)	for	...	Luton Corporation

Witness called:

Mr. C. K. Cole (Commandant of Luton Airport)

Mr. A. White (Assistant Solicitor)	for	...	Kent County Council
Mr. R. E. Gray (Clerk)	for	...	Sheppey Rural District Council
Air/Cdre. N. H. Fresson	for	...	Yorkshire Airport Development Association
Mr. G. E. Newson	for	...	Self

Witness called:

Mr. Fulton

Mr. J. D. Steel	for	...	Self
Lord Colville of Culross			
Mr. Hogg (Assistant Solicitor of Herts. C.C.)	for	...	Hertfordshire County Council and North East Metropolitan Regional Hospital Board

Witnesses called:

Dr. W. D. Lindsell
 Mr. R. D. Clarke
 Mr. Kitching

Mr. A. N. Bullough (Clerk)	for	...	Bishop's Stortford Urban District Council
-------------------------------	-----	-----	--

Witness called:

Mr. N. Fleming

List of Appearances (*contd.*)

- Mr. D. Davies
(of Knockolds & Sons) for ... Sawbridgeworth Urban District Council
- Mr. F. G. Laws for ... Southend County Borough Council
- Witnesses called:*
Mr. E. T. Riley
Mr. A. P. Cusworth
- Mr. N. G. Wallace for ... National Farmers' Union and Country Landowners' Association
- Witnesses called:*
Mr. B. S. Furneaux
Mr. G. A. Judd
Mr. Gowlett
Mr. J. S. Latham
Mr. G. W. Brown
- Mr. Peter Boydell, Q.C. for ... Hockerill College and Royal Wanstead Schools
Bishop's Stortford College
- Witnesses called:*
Miss A. Eden (Principal of Hockerill College)
Mr. G. Norton (Chairman of the Board of Governors of the Royal Wanstead Schools).
- Mr. Butcher (of Counsel) for ... Mrs. R. Ash
- Witnesses called:*
Professor Peter Self
Mr. P. W. Trumper
- Mr. B. Knight (of Counsel) for ... Mr. I. L. Robertson
- Witnesses called:*
Mr. P. W. Trumper
Mr. I. L. Robertson
- Mr. M. Arman (Secretary) for ... Thaxted Society
- Mr. J. Connell for ... Noise Abatement Society
- Witness called:*
Mr. J. W. Dark
- Mr. C. J. Dimond for ... Stansted Area Progress Association
- Mr. R. Dreschfield for ... Essex Branch of the Council for the Preservation of Rural England

List of Appearances (*contd.*)

Individual objectors appearing for Self:

Dr. J. Needham
Mr. T. Conrad (for Mrs. D. Conrad)
Mr. S. J. Bush
Mr. P. D. Harrison
Mr. R. Miles
Mrs. H. Miles
Mr. A. H. Bowden
Lt. Cdr. Boaks
Mr. J. W. Clitherow
Mr. J. T. Wallace (letter on behalf of)
Mr. D. H. Waterfield (also representing Miss A. D. Tennant)

Mr. Ellis for ... London Gliding Club

Statements on behalf of:

Springfield Residents' Association
Wasdale Construction Company Ltd.

Appendix 6: List of Objectors, etc. who made written representations.

- | | |
|---|--|
| 1. Council for the Preservation of Rural England (Essex Branch) | 37. Mr. H. J. Piper |
| 2. Takeley Parish Council | 38. Mrs. G. M. Maryon Wilson |
| 3. Mrs. R. Ash | 39. Mr. R. K. D. Renton |
| 5. Essex County Council | 40. Mr. H. J. Tribe |
| 6. Country Landowners' Association | 41. Dunmow Congregational Church |
| 7. North West Essex and East Herts. Preservation Association | 42. Mr. H. Woodley |
| 8. Mr. T. H. LeCornu | 43. Mr. J. L. Hawkes |
| 9. Mr. B. Hughes | 44. Mr. J. M. Tulloch |
| 10. Mr. A. H. Bowden | 45. Miss D. K. R. Brown |
| 11. Lt. Col. P. R. Bond | 46. Mr. H. O. Dennison |
| 12. British Gliding Association | 47. B. Gilbey & Sons |
| 13. Mr. J. W. Clitherow | 48. Mr. L. R. G. Markham |
| Mrs. R. M. Clitherow | 49. Mr. F. W. Salmon |
| Mrs. J. L. Heming | 50. Mr. G. A. Coleman |
| 14. Eastern Regional Board for Industry | 51. Mr. P. R. Ashford |
| 15. Mrs. L. Birchall, M.B.E. | 52. Mr. I. T. W. Evetts |
| 16. Sawbridgeworth Urban District Council | 53. Mr. G. C. S. Curtis |
| 17. Springfield Residents' Association | 54. C. R. Hockley |
| 18. Mr. I. L. Robertson | 55. Mr. & Mrs. F. W. B. Borrington-Wood |
| 19. Mr. B. F. Clifton | 56. Yorkshire Airport Development Association Ltd. |
| 20. Mr. J. T. Wallace | 57. Mr. K. B. T. Jones |
| 21. Mr. R. H. Langridge | 58. Quendon & Rickley Committee |
| 22. Mr. K. Yates | 59. Mr. E. Beales |
| 23. St. Elizabeth's School and Home | 60. Mr. S. A. Donald |
| 24. Mr. W. J. Cook | 61. Noise Abatement Society |
| 25. Mr. J. Pawle | 62. Mrs. E. Bush |
| 26. T. Latham & Sons | 63. Mr. W. A. Bush |
| 27. Mr. J. S. Latham | 64. Mr. H. B. Haynes |
| 28. Mr. D. F. Cock | 65. Mr. R. P. L. Beddington |
| 29. Mr. J. E. Gardner | 66. Mr. W. E. Puddicombe |
| 30. Hasler & Co. Ltd. | 67. G. W. Jackson & Son |
| 31. Mr. R. H. Fuller | 68. Thaxted Society |
| 32. Hertfordshire Branch, National Farmers' Union | 69. Elkin Mathews Ltd. |
| 33. Lt. Col. Sir W. J. Rowley, Bt. | 70. Mr. P. M. Gunn |
| 34. Mr. C. W. Randall, J.P. | 71. Mr. C. G. Archer |
| 35. P. B. Frost, Ltd. | 72. Epping & Ongar Rural District Council |
| 36. W. R. C. Morton & Co. Ltd. | 73. Mr. H. Harvey |
| | 74. Mr. S. J. Bush |
| | 75. Mr. S. M. Herbert |
| | 76. Mrs. L. A. Camp |
| | 77. Mr. D. B. Oliff |

78. Bishop's Stortford Urban District Council
79. Dunmow Rural District Council
80. Royal Wanstead School, Board of Governors
81. Mr. P. W. Willows
82. Mr. P. D. Harrison
83. Springate Turkey Farms Ltd.
84. Hertfordshire County Council
85. Saffron Walden Urban District Council
86. Mr. R. J. H. Haley
87. Mr. F. von Preussen
88. Mr. J. L. McGowan
89. Mr. R. A. Castle
90. Swarder Sons & Gingell
91. Mr. P. J. A. Innes
92. Mr. C. W. Hough
93. Mr. J. J. Burton
94. Mr. G. F. Wright
95. Mr. A. C. Bray
96. Miss S. M. Dellow
97. Mr. J. V. Gosling
98. Mr. D. W. Tagg
99. Mr. F. L. Taylor
100. Mr. A. H. Jones
101. Mr. L. Bush
Mr. B. S. Bush
Mrs. Y. M. Bush
102. Mount Caravan Park
103. Mr. G. P. Howell
104. Mr. N. P. Boddington
105. Mr. & Mrs. Hargrove
106. Miss M. A. Smith
Mr. J. M. Perry
107. Mr. G. F. D. Capon
108. Mr. R. Miles
109. Mrs. H. Miles
110. Mr. N. R. Knowles
111. Mr. P. R. Hayward
112. Messrs. H. C. B. & J. C. Hall
113. Mr. P. D. Sills
114. Mr. F. Stickland-Shailes
115. Mr. S. M. Spencer-Smith
116. Mr. A. Savage
117. Mr. A. E. Willis
118. Mr. R. G. F. Matthews
119. Mr. D. Smith
120. Mr. D. C. Leeder
121. Mr. J. Garton
122. Mr. G. W. Brown
123. Mr. L. Deval
124. Mrs. D. Conrad
125. Messrs. N. & A. C. Streeter
126. Mr. H. W. Steer
127. Harlow Urban District Council
128. Mr. E. C. Pelham
129. Mr. R. S. Coleman
130. Mrs. D. Easter
131. East Midlands Airport Joint Committee
132. Essex Farmers' Union
133. Luton County Borough Council
134. Chigwell Urban District Council
135. Mr. W. H. Clayden
136. Federation of Essex Women's Institutes
137. Mr. D. N. Burns
138. Mrs. T. Walpole
139. Mr. B. L. Hembry
140. Mr. J. Ellis
141. Warish Hall Farms Ltd.
142. W. J. Soper, Ltd.
143. Mr. O. M. Wentworth-Stanley
144. Mr. G. H. Pudfield
145. W. E. Mynott & Son
146. J. W. Chafer Ltd.
147. Mr. J. Steel
148. R. N. Broad & Sons
149. Gordon Crawford Ltd.
150. Mr. E. A. E. Josling
151. Mr. W. J. Perkins
152. Mr. T. J. Vernon
153. Miss V. F. Tebbitt
154. Mr. G. Hoyle
155. Mr. E. Smith
156. Mr. A. G. Boyd Gibbins
157. Boyd Gibbins Ltd.
158. Great Dunmow Primary School
159. Mr. H. B. Hughes
160. Mr. H. D. Stigwood
161. Mr. G. H. Gowlett
162. Mr. C. E. Warder
163. Mr. M. S. Smith
164. Mr. E. Hyatt
165. Mr. J. E. Hutley

166. Mr. & Mrs. P. Thawley
167. Mr. I. R. Wyld
168. Bishop's Stortford Liberal Association
169. Mr. D. C. Lovelock
170. Mr. R. A. Moss
171. Mrs. R. Salaman
172. The National Trust
173. Mrs. M. Barraclough
174. J. Pimblett & Sons
175. Mr. I. R. How
176. Mr. G. E. R. Gent
177. W. L. Tinney & Co. Ltd.
178. Mr. P. L. Brown
179. Mr. A. J. Cooper
180. Mr. J. L. McGowan
181. Mrs. D. Lovelock
182. Mr. H. G. Maryon-Wilson
183. Mr. G. C. Wright
184. Mr. S. Shearring
185. Mr. D. W. Joy
186. Takeley Congregational Church
187. Mr. D. C. Metcalfe
188. North East Metropolitan Regional Hospital Board
189. Mr. R. W. L. Giles
190. Mr. R. J. Prior
191. Godfreys Turkey Farms
192. London Gliding Club
193. Mr. B. Willis
194. Lt. Col. R. W. G. C. Charlton, M.B.E.
195. Mrs. J. Perry
196. Mr. R. Wallis
197. Mrs. M. D. Crittall
198. Mr. F. J. Lindsell
199. Mr. G. E. Dorrington
200. Mr. P. W. Butterworth
201. Mr. A. J. A. Temple
202. Geest Industries Ltd.
203. Dr. T. R. Savage
204. T. and C. Savage Ltd.
205. Mr. B. W. Smith
206. Miss C. W. R. Pyle
207. Pledgdon Hall Farms Ltd.
208. Mr. G. S. Curtis
209. Mr. A. Goodall
210. Mr. K. J. Cavalot
211. Mr. J. Dominick
212. Mr. H. C. Cocks
213. Miss A. D. Tennant
214. Mr. J. S. Johnstone
215. Hockerill College
216. Mr. C. J. Dimond (Stansted Progress Society)
217. Mr. J. R. Grinyer
218. Mr. C. J. Tinney
219. Mr. W. L. Tinney
220. Mr. and Mrs. E. V. Lindsell
221. Mr. M. F. R. Smith
222. Mr. J. G. Thompson
223. Mr. C. Deans
224. Mrs. M. A. Fry
225. Miss P. Urch
226. Mr. H. N. Sporborg
227. Mr. M. Norman
228. Dunmow Secondary School
229. Mr. J. M. Lukies
230. Rev. R. O. Masheder
231. Stansted Preservation Association
232. Mr. B. Green
233. Mr. D. H. Waterfield
234. Mr. A. Bull
235. Takeley Over-Sixty Club
236. Mr. R. W. Baxter
237. Mr. B. Delve
238. Southend County Borough Council
239. Mr. G. E. Newson
240. Thurrock Urban District Council
241. Mr. J. D. Steel
242. Hampshire County Council
243. Dr. J. Needham
244. Saffron Walden C.L.R.A.
245. Mr. W. H. Jones
246. Mr. D. Edwards
Mrs. M. Edwards
247. Mr. S. Parr
248. Mr. R. Curtis
249. Mr. K. J. Cole
250. Mrs. C. K. Osborne
251. Mr. A. J. Herbert
252. Mr. P. D. Maitland
253. Heston Ratepayers' Association
254. Basingstoke Rural District Council

- | | | | |
|------|-----------------------------|------|-------------------------------|
| 255. | Lt. Cdr. W. G. Boaks | 265. | Miss M. Finch |
| 256. | Youth Hostels Association | 266. | Miss E. Freeman |
| 257. | Mr. A. W. Payne | 267. | Little Hallingbury Parish |
| 258. | 32nd Association | | Council |
| 259. | Surrey County Council | 268. | Sheerness Urban District |
| 260. | Frimley and Camberley Urban | | Council |
| | District Council | 269. | Corringham and Fobbing |
| 261. | Mr. P. J. Mann | | Ratepayers' Association |
| 262. | Mr. B. J. F. Orma | 270. | Herongate and Ingrave Village |
| 263. | Mr. and Mrs. G. Lowe | | Preservation Society |
| 264. | Mr. K. H. Maunder | | |

Appendix 7

By Mr. J. W. S. BRANCKER

CONTENTS

SECTION 1	AIR TRAFFIC CONTROL AND THE OMNI-DIRECTIONAL USE OF AIRPORTS	
		page
PART 1	GENERAL	52
PART 2	AIR TRAFFIC CONTROL, STANSTED	54
PART 3	AIR TRAFFIC CONTROL, SHEPPEY	55
PART 4	AIR TRAFFIC CONTROL, CLIFFE	55
PART 5	AIR TRAFFIC CONTROL, PADWORTH	57
PART 6	OMNI-DIRECTIONAL MERITS	59
SECTION 2	INTER-AIRPORT COMMUNICATIONS	59
SECTION 3	SITE CHARACTERISTICS	60
SECTION 4	TRAFFIC GROWTH AND STATISTICS	62
SECTION 5	METEOROLOGY	63
SECTION 6	ALTERNATIVES OTHER THAN CLIFFE, SHEPPEY AND PADWORTH	64
SECTION 7	MISCELLANEOUS POINTS	64

Part I—General

1. I feel that the suitability or otherwise of the air traffic control systems suggested must be judged against certain general principles. While it is probable that technical developments will make it possible to position aircraft in all three dimensions more accurately than can be done at present, and consequently permit tighter patterns than those now acceptable, I feel that the 'fail-safe' principle must be adopted wherever possible. Traffic patterns should provide for the automatic separation of aircraft in accordance with general rules, rather than depending on the specific direction of each and every aircraft in order to avoid collision. The more the risk of human error can be eliminated, both in terms of giving instructions to aircraft, and in executing those instructions, the safer the system will be. Any pattern adopted must be known and fully understood by everyone using it, and there are consequently advantages to be gained by applying a stable system which need not be radically altered to meet a change in wind direction.
2. Furthermore, the smaller the load imposed on the control staff to maintain normal traffic flows, the greater the capacity of the system will be during periods of heavy traffic. In terms of future development, this implies that if the location of the third London airport makes it possible to use an uncongested control pattern in the immediate future, technical improvements may lead to an increase in the capacity of the system as a whole. If a more marginal control pattern has been adopted in the first place, it may not be capable of any further expansion.
3. It must be remembered that the whole technique is constantly developing and consequently there are very few procedures which can be regarded as immutable. It is possible that technical improvements will be more revolutionary than currently contemplated, and will supply simple solutions to problems which at present appear difficult. The ability to land completely automatically in all weather conditions, will tend to increase runway capacity—provided that aircraft can be fed into the runway system at the optimum rate. This merely emphasises the need for adequate sequencing areas in the right positions.
4. The evidence submitted, both by the representatives of the Ministry of Aviation and others, made it abundantly clear that the whole concept of using parallel runways for simultaneous landings is essentially a new one. It has been used at O'Hare, Chicago, for a relatively short time, but is still only employed to meet periods of high traffic activity, and in circumstances which are not wholly comparable to those prevailing round London. As far as the United Kingdom is concerned, there have been very limited tests carried out in conditions of good visibility at Heathrow, and somewhat more extensive, simulated experiments at Hurn. Both are fully described in Report No. 202 of the Air Traffic Control Evaluation Unit, of March 1965.
5. It is obvious that the whole procedure suggested is one which is experimental, in that it lacks actual practical experience, and has consequently not become formalised as an accepted international practice. The methods explained by Capt. Hunt, and demonstrated by means of his model, appear to be both practical and sensible, and they are clearly a good way of approaching the problem. But the distances, glide slopes etc., are not the only ones which will

produce the desired results, and I do not think they should be accepted as being wholly immutable. The principles behind them are eminently sound, but improvements in technology, and other considerations, particularly noise, may make it both possible and desirable to modify them.

6. While the evidence given, showing the very high rate of aircraft movements handled successfully by the three New York Airports, Kennedy, La Guardia and Newark, and the two Chicago Airports, O'Hare and Midway, quite honestly represents what can be done where airports are in close proximity, I do not feel that this should be given too much influence. The fact that it *can* be done in the United States, is not a very good reason why it *should* be done in England. It is clear, I think, that although the Air-Traffic Control Authorities in the United States are meeting present needs with considerable skill, they themselves would very much prefer wider spacing between the airports.

7. Much evidence was given concerning possible ILS glide-slopes. It is true that the current ICAO recommendation mentions $2\frac{1}{2}^{\circ}$ as the optimum and there are good reasons for taking this figure if other circumstances permit, but I do not think it should be regarded as sacrosanct. If, for good reasons, it must be increased, this can be done, but it must be pointed out that systems for automatic landings prefer a flatter approach path, and 'flare-out' is easier when the change of attitude is small. Similarly, there can be no real objection to parallel runways being provided with glide paths at different angles, thus giving greater vertical separation, provided that excessive angles are not used. I would not regard $3\frac{1}{2}^{\circ}$ as excessive.

8. While the concept of picking up the glide path from above was presented in evidence by Capt. Percy, and gave rise to some controversy, I do not think that this point is material to the choice of a site for the third London Airport. It can clearly be done, and merits further examination, particularly in the context of noise, but until it becomes a more universally accepted practice, I do not think a site should be selected which depended for its suitability on this practice being adopted by all aircraft.

9. I accept a Standard Busy Rate of 64 as being a practical rate to apply to an airport equipped with parallel runways, and I would also accept a Standard Busy Rate of 40 as being a sensible rate to apply to Gatwick when the second runway has been completed. These are reasonable targets. Similarly, although it may reduce the optimum rate of aircraft movements in good weather, the principle of applying Instrument Flight Rules to all aircraft in the London terminal area, at all times, should be continued. I agree with the theory advanced by the Ministry of Aviation that to obtain the maximum capacity from a parallel runway system, it must be possible to operate each runway independently of the other. Co-ordination may take place in certain circumstances, but it should not be essential.

10. The point is made in the Report of the Inter-Departmental Committee, that the third airport should be so sited that Heathrow and Gatwick would remain omni-directional in terms of aircraft movements to the greatest extent possible. This is a natural and valid requirement on the part of BOAC and BEA, who have considerable capital investment in Heathrow and wish to operate services to all destinations from a single base. However, if three airports are to be kept fully used, this may not be possible without some penalty, either in terms of more circuitous routings, or in differences in the air mileage to be flown to certain

destinations. A decision will also be necessary as to which operators will use the third airport, if BOAC and BEA are going to confine their activities to Heathrow.

11. Much evidence was advanced on the direction in which the greatest proportion of the traffic would move, with particular reference to Map No. 3 in the Report of the Inter-Departmental Committee. If, as was suggested by the Ministry of Aviation, some 80% of the traffic will be short-haul or medium-haul in nature, which seems probable, then the majority of this will be between London and destinations towards the south-east, so that a site in the south-east will show the shortest air mileages for the largest number of flights, and the least interference with other traffic flows.

12. Evidence was also given to the effect that a westerly site had definite advantages particularly in relation to supersonic aircraft, because the distance to the U.S.A. would be less, and because if they were unable to fly supersonically over land, they would be able to reach a point over the sea more quickly, where supersonic flight could be started. It is very difficult to assess the validity of this statement, because if supersonic aircraft are to be limited in the manner suggested, there is a considerable chance that they will never be brought into service at all, because they would be so difficult to sustain economically. In considering the choice of an airport I feel that supersonic aircraft should be assumed to operate in much the same manner as the sub-sonic long-range jets in service to-day, which implies that operations will depend on traffic requirements and will, in all probability, be as frequent to the east as to the west. It is quite possible that supersonic aircraft will be used on the Atlantic first, but this must be regarded as a temporary phase, and not as something on which a long term policy can be based.

Part 2. Air Traffic Control—Stansted

13. In his evidence in chief, Capt. Hunt gave a very complete explanation of the air traffic control pattern which he envisaged for Heathrow, Gatwick and Stansted. Even if there were no developments in navigational and control technology, I believe that this would be a completely practical pattern and that each of the three airports would be as omni-directional as is ever likely to be achieved, unless the third airport was unacceptably far from London. It was however, quite clear that in approaching the whole problem, the Ministry of Aviation and the traffic control experts have adopted a very conservative attitude and have insisted on a generous separation of traffic streams, even in circumstances which may occur relatively infrequently. I have no fault to find with this policy, provided that it does not lead to undue penalties in other respects. Although in evidence, Capt. Hunt himself admitted that there would certainly be changes before a final pattern was adopted, it seemed to me that there was a tendency to treat the existing Airways and sequencing areas as virtually immutable, whereas to obtain the best results a complete revision may be necessary.

14. The parties opposing Stansted stressed the interference which would be caused to military aviation in the area, and to Wethersfield in particular. It is impossible to assess the weight of this argument without detailed information about the activities of each and every airfield affected. In these circumstances, I think that Capt. Hunt's assurance, to the effect that the disturbance will not

be serious, must be accepted, and that although the activities of Wethersfield will have to be limited, this will not prove a major problem.

15. Even with Stansted in full operation, I have little doubt that the airports at Luton and Southend will be able to continue to function as they are at present, but it is equally clear that further expansion will be limited. It is possible that conflict will be accelerated if more turbo-jet aircraft make use of these two airports, and to achieve the maximum capacity of the whole London airport complex it may be necessary to give more specific sequencing areas to both Luton and Southend.

16. Although it does not have any direct effect on the use of Stansted as the third London airport, there is no doubt that the complete removal of the prohibited area, caused by the Shoeburyness Range, would be a considerable advantage. It would permit other possible sites to be more seriously considered, and in any case would make the routing of flights in and out of Southend very much more straightforward. The evidence presented for its retention, even with a reduced ceiling of 35,000 ft., was far from convincing, and its presence on the doorstep of London appears to be a complete anachronism.

17. I find it clear from the evidence presented, and the explanations given that, in terms of air traffic control, Stansted is quite suitable as the site for the third London airport. I do not think, however, that it is the only site which could be used, but in this respect it is the most attractive of the alternatives proposed at the Inquiry.

18. If Stansted was selected as the site for the third London airport, both Heathrow and Gatwick would remain reasonably omni-directional and Stansted would also be acceptable in this respect.

Part 3. Air Traffic Control—Sheppey

19. I do not think very detailed comment on Sheppey in this respect is necessary, as there is no conflict with Heathrow or Gatwick, a point which was accepted by the Inter-Departmental Committee. The Shoeburyness Prohibited Area is, however, a very much greater obstruction than in the case of Stansted. While I believe that a site at Sheppey could be operated with the Shoeburyness Range in position it would, in these circumstances, be much less effective than Stansted. It would also have a greater impact on Southend, particularly as much of the Southend traffic is to or from the south-east. For this site to be seriously considered as the third London airport, I think it would be necessary for the Shoeburyness Range to be eliminated, and for there also to be some degree of co-ordination between Sheppey and Southend. The air traffic pattern submitted by Mr. Rofe gave the impression of having been devised rather hurriedly, and it is probable that a better one could be designed after more thought and consideration. However, with these reservations, Sheppey is a good site from the point of air traffic control, and would leave Heathrow and Gatwick omni-directional. Flights to the west from Sheppey would be more difficult than from Stansted, but it would be very well placed for flights to the east and southeast.

Part 4. Air Traffic Control—Cliffe

20. The evidence submitted showed that there was a clear divergence of views as to whether or not there would be a conflict with Heathrow in certain circumstances. Before examining this particular point, I must repeat some of the

comments made about Sheppey. The presence of the Shoeburyness Range makes the situation appreciably less attractive than Stansted, and although Southend airport could continue to operate the impact of Cliffe would be considerable.

21. I do not think that the tentative air traffic pattern produced in evidence by Mr. Rofe would be acceptable; primarily because it would involve reversing the direction within sequencing areas to meet every change in the direction of runway use. It would also be necessary to change the geographic position of at least one of the sequencing areas in the same circumstances, but this is less objectionable, although it might cause problems. I have no doubt that an improved pattern could be produced, and this was in fact accepted by Capt. Hunt in evidence. But I doubt if Cliffe could be made wholly satisfactory with the Shoeburyness Range in position. I agree with the point made by Mr. Rofe, that, if the Range were removed, it would be possible to operate Cliffe and Southend under closely co-ordinated control to give a joint capacity similar to that of Kennedy and La Guardia. It must also be pointed out that there are a number of high obstructions to the west of Cliffe, which, although they do not impinge on the flight path in the technical sense, might have an effect on the siting of the third runway should one be needed.

22. The degree of conflict with Heathrow is more difficult to resolve. It was said to occur when aircraft were landing at Heathrow in a westerly direction and in an easterly direction at Cliffe. It was accepted that the distance between the eastern ends of the Heathrow runways and the western ends of those proposed for Cliffe, would be 35 nautical miles, and there was no major difference of opinion on the principle that there should be a minimum lateral separation of 5 nautical miles between aircraft under the direction of different radar controllers. The evidence given by the representatives of the Ministry of Aviation maintained that it was necessary to have an approach path at least 16 nautical miles long, when using parallel runways for simultaneous landings. In these circumstances, the two paths added together would amount to a distance of 32 nautical miles, thus leaving only 3 nautical miles of separation between their inner ends.

The point on which the views of the experts differed was whether the approach path of 16 miles was an absolute minimum, or whether a shorter distance was possible and practical.

23. Much evidence was given both in the case of Cliffe, and later in the case of Padworth, in support of, and against, the absolute necessity for this distance of 16 nautical miles. The point was made in evidence given by Capt. Percy, that certain experts in the United States had recommended turning aircraft on to the localiser and the glide path very much closer to the runway threshold, but these remarks referred only to the use of a single runway and I do not consider them relevant. The disputed distance of 16 nautical miles has been built up quite logically by the air traffic control experts in the United Kingdom for application with a 3 degree glide slope, and, although it is still a tentative figure, it can be accepted on principle. But this seems to be a marginal case and there appear to be two ways in which safe separation could be established if there were other good reasons for using Cliffe.

24. The distance of 16 nautical miles includes, in fact, an extra 2 miles which is required essentially to help sequence aircraft of differing speeds. While I accept the need for flexibility of this kind, I believe the same results could be

obtained by keeping aircraft somewhat further away from the centre line of the runway on the downwind leg, and using more space to the side and less at the end of the final approach paths. Similarly, by adjusting the glide slopes serving the runways at Cliffe, greater vertical separation could be established between aircraft landing at Cliffe and those landing at Heathrow.

25. There is another factor which must be considered. The meteorological data submitted indicates that, if the westerly bias at Heathrow is maintained, i.e. the runways are used in a westerly direction until a tail wind component of 5 knots is exceeded, and if a similar bias is applied to Cliffe, there will be an average of 8.9% occasions during the year when this conflict will take place. The figure will be slightly higher during the Spring and early Summer. The westerly bias is applied at Heathrow for reasons of noise, and valid evidence was given to the effect that the application of a general easterly bias at Heathrow would impose material economic penalties. But it is clear that the number of occasions when there was a possibility of conflict could be reduced considerably if the westerly bias at Heathrow was lifted only on those instances when easterly landings and take-offs were necessary at Cliffe, because of an east wind component of more than 5 knots. There would be occasions when there was some economic penalty at Heathrow, but this is the fault of bad planning at Heathrow, not Cliffe.

26. One bad feature of the air traffic control plan submitted by Mr. Rofe in relation to Cliffe was that it tended to lead to conflicts between inward and outward-bound traffic crossing at similar altitudes, and in this respect it was inferior to Stansted. It appears, however, that, if the Shoeburyness Range were removed, and the whole London traffic pattern revised on the basis of treating Cliffe as the third London airport, this particular point would present very much less of a problem.

27. No evidence was offered to show the interference with military airfields which might be caused by having the third London airport at either Cliffe or Sheppey, and it appears to be almost negligible.

28. To summarise from the air traffic control aspect, I believe that Cliffe could be used effectively if the Shoeburyness Range was eliminated, but Southend operations would be more restricted than in the case of Stansted. I regard the potential conflict with Heathrow as being capable of solution, and by a general revision of the general rules governing the London Terminal Area, I think some of the other apparent deficiencies could be cured.

Part 5. Air Traffic Control—Padworth

29. Padworth could not be considered omni-directional in the true sense because routes to the south-east and east would definitely be in conflict with traffic to and from Gatwick, although the difficulties cannot be said to be insuperable. However, it was proposed essentially as an airport to serve the west and south-west, leaving other destinations to Heathrow and Gatwick. In this respect I would regard it as inferior to Stansted. The chief objections raised by the representatives of the Ministry of Aviation in connection with air traffic control were related to the conflict which might take place between aircraft taking off from Heathrow in a westerly direction, and aircraft landing in a westerly direction at Padworth.

30. This potential conflict hinges again on the minimum distance required for the final approach path when dual runways are used simultaneously. Although the majority of the evidence given by both parties dealt with the situation when both Heathrow and Padworth were operating in a westerly direction, the same problem would arise in a modified form when both airports were operating towards the east. As in the case of Cliffe, the representatives of the Ministry of Aviation stood firmly on the need for a minimum distance of 16 nautical miles from the runway threshold. With an agreed distance of 20.6 nautical miles from the eastern ends of the proposed Padworth runways to the western end of the southernmost Heathrow runway, the lateral separation between aircraft taking off from Heathrow and those landing at Padworth would be reduced to less than the 5 nautical miles stipulated. The point was also made that aircraft taking off from Heathrow would not be able to turn immediately, and would consequently infringe this safety distance quite seriously.

31. The arguments put forward by the proponents of Padworth were to the effect that, by raising the slope of the glide paths serving the Padworth runways, aircraft landing there could be turned on to the localisers at greater altitudes, and aircraft taking off from Heathrow and turning south could pass beneath them. No great problem arises in the case of aircraft taking off from Heathrow and turning north, as they would avoid the Padworth approach pattern almost entirely. It was felt, however, by Capt. Hunt, in stating the case for the Ministry of Aviation, that if aircraft taking off from Heathrow and turning south had to be kept low to avoid aircraft landing at Padworth, a conflict would arise between them and the traffic from Gatwick which would then be at a similar altitude. It was also pointed out that even if vertical separation could be achieved in the manner suggested, it would produce a very confused picture to the controllers, particularly owing to the proximity of the southern Heathrow sequencing area, and there would be a consequent risk of mistaken identity.

32. I believe that this last criticism is true, and it is a situation to be avoided if possible. If there were compelling reasons to use Padworth, I think this could be done from the point of view of air traffic control, but it is a marginal case and is certainly less attractive than Stansted.

33. The use of Padworth would involve moving Airway Green One some ten miles to the north of the present position, which appears to have little significance in itself but will bring it over a number of R.A.F. airfields. It is difficult to assess the full effect from the evidence submitted, but it is unlikely to be drastic. It is clear that if Padworth is used, the Atomic Weapons Research Establishment at Aldermaston must cease to exist in its present form, but no direct evidence was offered as to the necessity for its retention.

34. It is clear that the use of Padworth as the third London airport would have a restrictive effect on flying at Farnborough and would make flights from Farnborough to Boscombe Down more difficult. Operations from Boscombe Down itself would be virtually unaffected, but flying from Blackbushe would have to be curtailed. Gliding from Lasham would be almost impossible.

35. It is clear that in certain weather conditions, when Heathrow and Padworth could not be operated in the same direction, the capacity of Padworth would be severely restricted, although the proposed northeast-southwest runway could probably then be used. It is not entirely clear from the evidence, how often this state

of affairs would occur, and more exact meteorological readings actually taken on the proposed site, would be necessary. The current westerly bias at Heathrow would also have to be taken into account.

36. To summarise on the subject of Padworth in relation to air traffic control, I do not think it can be ruled out entirely on this count, but it produces problems which, although capable of solution are undesirable if they can be avoided.

Part 6. Omni-directional Merits

37. The point has already been made that Stansted is satisfactory in terms of leaving Heathrow and Gatwick omni-directional and would be reasonably omni-directional itself. Sites at Cliffe or Sheppey would not interfere unduly with operations from Heathrow or Gatwick, but access to them from the west would be more difficult than in the case of Stansted. The least attractive in this respect is Padworth because services from it to destinations to the north-east, east and south-east would all be difficult. It would not prevent Heathrow and Gatwick remaining omni-directional, although in giving evidence in favour of Padworth, Capt. Percy gave the impression that it would take over from Heathrow much of the traffic presently moving to the west on Airway Green One and to the south-west on Airway Red One. I doubt if this is really a practical proposition, because BOAC will wish to continue to operate services to America from Heathrow and competitors will be unwilling to use an airport which is appreciably further from London.

38. To a great extent the destinations which should be served by the third airport will depend on the situation with regard to access. If, for example, it is easier to reach than Heathrow or Gatwick for a large section of the London public, then they will expect to be able to use it to a large number of destinations, and it may be necessary for BOAC and BEA also to use it for some services at least. If, on the contrary, it is very much more inaccessible to the majority of the potential passengers, it may be very difficult to get operators to use it at all. Foreign flag carriers, even though they do not need a major maintenance base in London, will refuse to be put in a non-competitive position vis-a-vis BOAC or BEA. If, in fact, it is slow or difficult to reach, it will be quite unsuitable for short-haul traffic of any kind, where the essence of the contract is speed. If the competitive position in respect to access is reasonable, then there will be a tendency for the third airport to be used by those foreign carriers who find that it reduces their air mileage.

SECTION 2. INTER-AIRPORT COMMUNICATIONS

39. The point was made in the Report of the Inter-Departmental Committee that there should be good surface communications between all three London airports, but at the Inquiry little evidence was offered on this particular subject, except in relation to Padworth.

40. Road communications between Stansted on the one hand, and Heathrow and Gatwick on the other will be extremely slow until many new roads have been completed, and even then it appears that the journey will take approximately $1\frac{1}{2}$ hours. It is possible that better road communication between Cliffe and Sheppey, and Gatwick will be available somewhat sooner, but even in the best circumstances the time taken will be of the order of $1\frac{1}{4}$ hours.

41. In this particular respect Padworth would have very much better access to Heathrow by way of M4, and would not be too inaccessible to Gatwick. The point was also made, in support of Padworth, that all three London airports should be as close together as possible in order to reduce the mileage involved in ferrying aircraft from one to another.

42. In selecting a site for the third airport, I do not think too much weight should be given to this particular problem. While inter-airport communications are obviously desirable, it is somewhat doubtful whether inter-line traffic will accept a transfer from one airport to another, even if the journey is short, except in a small number of cases. There is a very much stronger case for cargo, but the right approach may well be to make the road pattern fit the airports when the third site is definite. I have considerable doubts about the viability of inter-airport air services, whether by helicopter or fixed-wing aircraft, and although I accept the advantages to be gained by having all three airports close together, both in this context and in respect of ferrying, I feel that there are other more important considerations.

43. The problem of passenger inter-line traffic will, in practice, only be solved by providing inter-line facilities at each of the three London airports including the third. This pre-supposes that the third airport is used for a certain number of domestic services as well as international flights, and will again have a bearing on the carriers who are ready to use it.

SECTION 3. SITE CHARACTERISTICS

44. Stansted was the only site which had been covered by a complete outline plan, and even this did not include costs. Comparison with the other sites is therefore difficult. But there are certain general aspects which I believe must be considered and the chief of these is the capability of expansion.

45. While the Report of the Inter-Departmental Committee was somewhat vague on the subject of the need for a fourth London airport, Mr. Hole, in giving evidence for the Ministry of Aviation, made it clear that this was more than a possibility, and would have to be seriously considered in the next few years. It is clearly going to be extremely difficult to find a site for the fourth airport, although Capt. Hunt gave evidence to the effect that, if Stansted was chosen as the third, it was possible that the fourth might be situated somewhere in the south-east quadrant. If in fact the figures for traffic growth submitted by the Ministry are materially exceeded, and this is certainly possible, then the need for additional runway capacity may come earlier than expected. We do not know the extent to which an increase in direct services from the Provinces to points abroad will relieve the pressure on London, but we are currently faced with two airports where expansion is strictly limited, and which may not even be capable of being used to their full capacity for reasons of noise. It would seem to be unwise, therefore, to choose a site for the third airport which was not capable of being enlarged. With an increase in the size of aircraft used, the number of aircraft movements to be handled may not increase in proportion to the actual traffic carried, and the position might well be reached where some extra runway capacity was needed, but not enough to justify a fourth airport.

46. Mr. Newson and Mr. Fulton produced in evidence an outline of a very major project based on Sheppey, which was designed to take over all the present

traffic handled at Heathrow and also allowed for considerable traffic growth. This was not examined in any detail, but did not appear to be a practical proposition in the form presented. However, this does not detract from the wisdom of ensuring a reasonable degree of elasticity in deciding on the best site for the third airport.

47. No thought appears to have been given to a completely different approach to the use of a third airport—that of keeping it for short-haul traffic only, with a consequent limitation in the length of the runways required. While this might make a number of other sites worth further consideration, the implications would have to be examined in considerable detail before any policy decision was taken, although this is a possibility which should not be wholly overlooked.

48. It seems to me that the capability of expansion must not only embrace the question of additional runways, but also the other facilities which may be required. Increased traffic must not be inhibited by artificial restrictions to prevent noise contours rising beyond an acceptable level. Furthermore it must be in a situation where the acquisition of more land is not prohibitively expensive, or where it would be strongly resisted. Alternatively, sufficient land must be taken over in the first place to allow for future development when it is required.

49. It is reasonably clear from the outline plan prepared by Norman & Dawbarn, that the site at Stansted is satisfactory for the construction of two full length runways, together with a shorter third runway should it be needed. But it would appear to be very difficult to extend the third runway should this be wanted—which is probably unlikely. There also appears to be sufficient space available for all the facilities which can presently be seen to be necessary. But the airport is on very valuable agricultural land and it seems probable that any further expansion would be strongly resisted. It also seems likely that more intensive use would be extremely unpopular because of the noise effect. Any attempts to mitigate the noise problem by the deliberate development of industry in the vicinity of the airport would also run into difficulties. It is difficult to see any tangible objections to Stansted in this context, if the space for the third runway is taken over at the outset, but there are obvious limits to what can be done there.

50. The tentative plans submitted as evidence are, I think, sufficient to show what could be done at Cliffe and Sheppey. Without cost figures one cannot say whether the construction of runways and buildings on marshland would be very expensive, but I see no reason why it could not be done. While there is adequate space at Cliffe for the construction of two runways, it would be difficult to add a third, which would have to be situated on appreciably higher ground to the south. There do not appear to be serious limitations on other building developments, and a relatively large area of land could be taken over.

51. At Sheppey three full length runways could be provided and there appears to be more than adequate land available for any other developments which might be required, at small loss to the community.

52. The proposed site at Padworth lies on a plateau and there is a fairly sharp drop in levels round the edge. There appear to be no insuperable problems about building two full length east-west runways, and a third one running northeast-southwest. There is also space for a shorter east-west runway in addition to the

other two, should it be needed. Some difficulties may be experienced in siting ILS equipment but they can probably be overcome. Because of the difference in levels the siting of the terminal buildings, hangars and the other facilities needed, may present problems, but insufficient evidence was given to show quite how serious these would be. In many respects Padworth would suffer from the same sort of limitations which one could expect at Stansted. It would not be very easy to secure additional land should it be needed, and full expansion might be inhibited by noise.

53. Evidence was offered which indicated that water, power, drainage etc. could be made available at Stansted. These subjects were not specifically raised in connection with the other sites, but one must assume that they could be made available.

SECTION 4. TRAFFIC GROWTH AND STATISTICS

54. The Terms of Reference governing the Inquiry are quite clear that neither the need for a third airport nor the date when it will be required are proper subjects for discussion, but the size of the project will depend on traffic growth, and the suitability or otherwise of any site will in turn depend largely on the size. With this in mind, the figures showing the estimated traffic growth and the average number of passengers per aircraft are of some importance. Moreover, if the third airport is to be acceptable to the operators and customers, it must be accessible to a large section of the London public, and this can only be decided if figures are available showing the actual points of origin and destination of traffic.

55. It is difficult to comment effectively on the traffic growth figures which appear in the Report of the Inter-Departmental Committee without knowing exactly how they have been compiled. Annual growth rates for passenger traffic from 1962 to 1980 were supplied by the Ministry of Aviation in a separate document which was made available during the Inquiry. In the Report itself, and in evidence given during the Inquiry, it was stressed that these estimates were conservative, and it is my opinion that they will be exceeded materially. I believe also, that after 1972, if not earlier, the average number of passengers per aircraft will be appreciably greater than those assumed by the Ministry. I suggest this because the smaller aircraft, which are presently in service and which keep the average down, are already on the way to being obsolescent, and replacement equipment will be larger. It is also very probable that after 1972, very large subsonic aircraft will start to come into service and they will raise the average.

56. As was suggested in evidence, it is quite possible that the effects of larger aircraft and a greater volume of traffic will off-set each other in terms of aircraft movements. If this happens the estimated needs of runway capacity may remain unchanged, but the problem of access for more passengers and heavier freight loads will be more acute. Provision must be made for handling the maximum loads expected and not only for dealing with the average.

57. I agree with the point made in evidence that the introduction of very large aircraft will make the provision of rail access more important, as this may be the only practical way to handle heavy peak loads.

58. While I am satisfied that the Ministry of Aviation has done its best to provide information about the origin and destination of passengers in the London area, it is apparent that only very little factual data is available. The figures made available during the Inquiry relate to 1958, and the pattern may have changed. Furthermore, because ease of access either to a town terminal or to an airport will depend greatly on the exact location from which the journey is started, these figures are needed in greater detail so that they can be sorted into different groups to show the relative merits of alternative terminals and airport sites.

59. I am surprised that almost no evidence was offered to show the estimated growth and probable requirements of air freight, because this form of traffic is currently growing faster than passengers. Although much cargo will continue to be carried as fill-up load on passenger aircraft, the future trend is towards moving it on specialised freighters, or on part-cargo and part-passenger aircraft, so that the number of aircraft movements to be handled will also be affected. In this context a study of the origin and destination of cargo in the London area is required so that a rational system for collection and distribution in relation to the third airport can be considered.

SECTION 5. METEOROLOGY

60. Broadly speaking the meteorological data submitted in evidence did not show any very marked differences between Stansted and the other alternatives. There appear to be fewer cases of low visibility at Padworth than at Stansted, but the difference is not very great, and as the readings were not taken on the site itself there may be local variations.

61. Cloud and visibility figures which were entered as evidence to support the suitability of Cliffe and Sheppey, were taken at Shoeburyness, Woolwich, Gravesend and Southend and also tend to show better weather than at Stansted; a fact which was found surprising by some witnesses. However I see no reason to doubt them.

62. In considering the weight which should be given to this evidence, I feel that it should be treated negatively rather than positively. In other words it should be regarded as serious if it indicated that a proposed site was particularly bad in this respect, but this does not seem to be the case. It is sufficient to indicate that no serious objection to Stansted can be raised on the grounds of the weather conditions there.

63. From the evidence submitted I have no reason to suppose that the runway capacity at any of the sites put forward would be unduly restricted by excessive cross-wind components, and Stansted is also satisfactory in this respect.

64. Although the possible Heathrow/Cliffe conflict occurs when easterly landings are necessary at Cliffe, while westerly landings are in progress at Heathrow, this does not depend wholly on weather, but partly on the policy of maintaining a westerly bias at Heathrow. The meteorological data supplied by the Ministry of Aviation shows quite clearly when such a conflict might take place, but the number of times when it really would is dependent on air traffic control and the noise situation at Heathrow.

65. The point made by Capt. Percy to the effect that weather conditions are more likely to be different between Padworth and Heathrow than between

Stansted and Heathrow may well be right but detailed figures over a longer period would be necessary to see whether it was worth taking into account. I think that other factors are probably more important.

SECTION 6. ALTERNATIVES OTHER THAN CLIFFE, SHEPPEY AND PADWORTH

66. While considerable evidence was submitted on the subject of Cliffe, Sheppey and Padworth, certain other alternatives were proposed, some with very little supporting information, and general comments on these are set out below.

Castle Donnington and Ferrybridge

67. I do not think that either of these can truly be considered as a London airport and must be excluded on those grounds, however good the case may be for encouraging the development of airports in the provinces. It seems to me that the Ministry of Aviation should declare its policy in this respect and then calculate the effects which it may have on the London requirement.

Foulness

68. Little evidence was given about Foulness because it would be quite impractical to consider it unless the Shoeburyness Range was removed. If this were done, the site would appear to have much the same characteristics as the proposed site at Sheppey. My personal opinion is that satisfactory air traffic control patterns could be devised and that the noise problem in relation to Southend is capable of solution. One of the difficulties would be that of access. I think it would also lead to the almost complete suppression of Southend airport.

Dengie Flats

69. Here again, the evidence presented was rather scanty, and no traffic control patterns were presented. However the site appears to be a technical possibility, although some problems would arise. Access would be difficult and the land concerned has a fairly high agricultural value. The Range at Shoeburyness would almost certainly add complications, and although it might be possible to use Dengie Flats as an airport with the Range still in position, I think its removal should be made a condition of any further examination. If this were done Southend airport could continue to function, although there would have to be some degree of co-ordination and possibly restriction.

Plumstead Marshes

70. An airport at this site would lead to conflict with Heathrow and I think must be rejected on these grounds alone.

Gunfleet Sands

71. In my opinion the proposal to site the third airport on Gunfleet Sands would be quite impractical in the form described, because it fails to take account of the basic necessities.

SECTION 7. MISCELLANEOUS POINTS

72. Certain other matters were raised in evidence which do not rightly belong to the previous paragraphs. Comments on them are given below.

Number of Employees

73. There was some divergence of opinion as to the number of individuals who would be employed at the third London airport. This will essentially depend on how the airport is used and who uses it. As it is presently the intention of BOAC and BEA to keep their main repair and maintenance organisations at Heathrow, even if they ultimately use the third airport for arrivals and departures, the numbers will be very much less than those employed at Heathrow even though the airport capacity may be similar. I must, therefore, disagree with the evidence by Mr. Kitching. In these circumstances, the estimate of 10,000 submitted in evidence on behalf of the Ministry of Aviation is about the best which can be made. But this figure could be increased quite appreciably if one of the British Independent operators set up their main base at the third airport, which might add an extra 2,000 to 3,000 people. I do not think this can be foreseen at the present moment, but for this and other reasons, a site where there is space for an over-spill of population must have definite advantages.

Helicopters

74. While there may be considerable merit in developing and using helicopters in the manner described by Lt. Commander Boaks, I do not think that at this moment it can materially affect the choice of the third London airport. The implementation of his scheme would presumably permit a more distant site to be chosen, but the helicopters would produce their own noise problem, and, in the present state of the art, the economics of this kind of operation would be untenable. If technical developments make the economics appreciably better, then I think there will be an almost automatic development of ancillary distribution services from each main airport, using helicopters.

Gliding

75. The point was made in evidence that the siting of the third London airport at Stansted would make gliding from Dunstable more difficult and might inhibit long distance gliding altogether. Similarly, placing the airport at Padworth would stop gliding at Lasham. I think this is true, but I also think that, as air transport grows, and the airspace becomes inevitably more congested, effects of this kind cannot be avoided. However much one may wish to preserve gliding facilities close to London, I do not think this can be allowed to stand in the way of choosing the best site for the third London airport. I am sure that the traffic control authorities will give gliding the greatest possible freedom, consistent with safety, but there are a number of sports and pursuits which cannot be carried on close to an urban area and I am afraid this may be one of them.

General Aviation

76. From the evidence given at the Inquiry, it appears that the Ministry of Aviation has formulated no general policy in relation to aircraft which are not employed either on regular services or on major charter work, although the number of aircraft of this kind, and in particular executive aircraft, may increase very considerably, as, indeed, has happened in the United States. In the past these aircraft have been discouraged from using Heathrow, but I do not think it is right or sensible to try to keep them out of major London airports indefinitely, provided they can conform with the air traffic control requirements. It is doubtful, in fact, whether, the possible needs of this type of aviation have been

considered in estimating the number of aircraft movements to be handled. This particular point may not affect the final site for the third London airport, but it may well affect the overall runway capacity required, and consequently the kind of site which is suitable.

General

77. I am extremely hesitant to suggest anything which may lead to delay, but much of the evidence submitted seemed to me rather superficial and I would be very much happier to see a general examination in more depth before any firm decision is taken.



Printed in England for Her Majesty's Stationery Office by McCorquodale, London

D4. 132619 K20 12/66 HM 1339 3309